alteryx
Tips & Tricks
VERSION 11 | 2017

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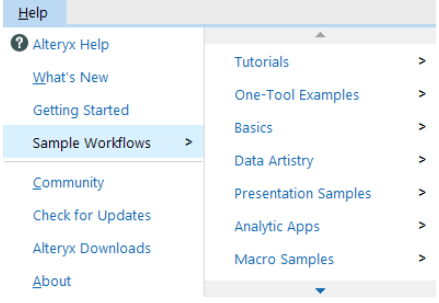
Getting Started – Alteryx Resources

Getting Started – Alteryx Resources

Sample Workflows, Alteryx Community, Gallery, Alteryx Blogs & Help Documentation

Sample Workflows:

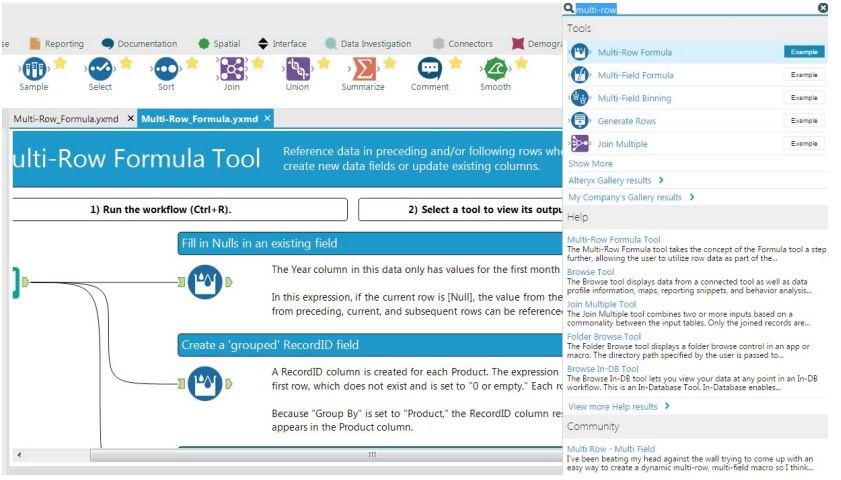
There are a number of Samples that come prepackaged in your Alteryx installation. Simply go to Help→Sample Workflows to find fully annotated Workflows, Macros, and Apps. Their purpose is to show you real world analytical problems and how to solve them. Get a sense of how to use the Alteryx Interface with the paint-by-number training approach in "Tutorials". Then move on to the more complex samples that cover everything from basic data joins to Predictive Analytics!



One-Tool Examples:

Within the Sample workflows menu, you'll find a number of One-Tool Examples. These are simple to follow, fully annotated, use case examples for specific tools within Alteryx. There are a number of tools available across many different tool categories:

Originally debuted in version 11.0, find one tool samples when you search a tool by name in the global search bar. New to Version 11, also find many updated and new samples.



New in Version 11: One Tool Samples

- Data Cleansing Tool
- Multi-Field Formula
- Multi-Row Formula
- Field Summary Tool
- Test Tool

Enhanced in Version 11: One Tool Samples

- Browse Tool
- Input Data Tool
- Output Data Tool
- Formula Tool
- DateTime Tool

Alteryx Community:

Check out **http://community.alteryx.com** to engage in the Alteryx open forum for all users! Here you can post questions, answer questions, and search for previously discussed topics. Users also have access to the Knowledgebase which contains articles written by the analytics and data visualization experts from the Alteryx staff. Also feel free to drop Ideas in our Idea Center. This is a place for you to share your ideas or vote on existing ideas for improvements or tweaks to Alteryx. Your suggestions will ultimately drive the advancements in the future versions of Alteryx!

Gallery:

Check out the Analytics Gallery at **http://gallery.alteryx.com**. Here you can browse the Alteryx Public Gallery to find apps that solve business problems across a variety of industries. Many of these apps can also be downloaded to your machine and opened in your Designer! Use the gallery to learn how apps are constructed and how data flows through properly configured tools. You can reverse engineer apps you are interested in and incorporate those features into your own workflows. The Macro District is also available and always growing with useful macros that simplify reusable processes. You can download Macros from the Gallery and add them to future workflows.

The Macro District includes macros sourced from users within Alteryx as well as other developers. Browse, share, and customize these analytic applications to put them to work for your business!

Do you have a macro to share? To add your macro to the Macro District, save your macro in a workflow as an Analytic App (even if it's not an app), add the text "Macro District" to the Meta Info area where you add your description and then Publish it to the Gallery. Make sure the option to Download is selected so others can check out your handiwork. If you can set up your workflow as a sample highlighting how to use your macro, that's even better.

The Alteryx Predictive District delivers pre-built tools, workflows, and macros to help incorporate specialized analytical techniques and processes that can help impact the business. Learn more about how Alteryx empowers data analysts and line-of-business users to perform their own predictive analytics.

Note: Many of the tools make use of functionality recently added to the Alteryx Predictive Plug-In. As a result, we highly encourage community members to upgrade to the most recent Predictive Plug-in, available from the Alteryx Download site. In addition, some tools require additional R packages. The tools attempt to install the needed R packages, but are not always successful due to firewall and proxy server issues.

Alteryx Blogs:

Look to blogs written by Alteryx employees to learn more about new macros and Alteryx concepts at *Engine Works Blog* **(community.alteryx.com)** and *Chaos Reigns Within* **(http://www.chaosreignswithin.com/)**. The *Engine Works Blog* features information about new macros published in the Macro District, details about new releases, Inspire related posts, and more. *Chaos Reigns Within* is the personal blog of a Software Developer at Alteryx and he publishes a Blog Macro Pack each quarter. Some of the macros are prototypes and most have not gone through the extensive testing process it takes to make it into the product, but you just might find a solution to the problem you have been struggling with and it is as easy as downloading a macro!

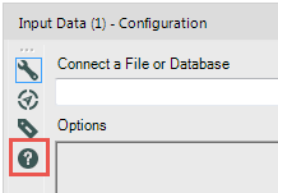
Help Documentation:

Alteryx has an online repository for all your in-product questions. Every tool within Alteryx has a help page that explains configuration options.

There are four ways to access the Help file from the Designer.

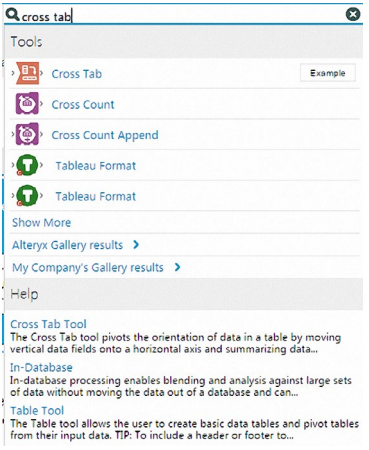
1. Click on any tool on your canvas and press the F1 key.

2. Open any tool's configuration window and click on the Help icon:



3. Click on any tool on your canvas and click the help icon in the top right hand corner of the Designer:

4. Type the name of any tool in the global search bar



Also within the help documentation is useful information about building macros, constructing formula expressions using the built in functions, data type explanations and more!

The not-so-new kits on the block: Alteryx Starter Kits

Get the most out of Alteryx by leveraging Starter Kits. The kits contain key analytic applications, visualizations, and tutorial information. All Starter Kits can be downloaded from http://www.alteryx.com/analytic-starter-kits. For silent install instructions, email support@alteryx.com

Alteryx Data Blending Starter Kit

Build the dataset you need quickly and easily. Learn how to expedite the cleansing, prepping and blending of multiple data sources such as Excel, XML, social data, survey data, and more with these templates.

Alteryx Customer Analytics Starter Kit

Perform customer analytics faster, with key templates, as well as step-by-step interactive guides for building out customer insights such as sentiment analysis or customer lifetime value and easily output insights to Tableau or Microsoft Power BI.

Alteryx Starter Kit for Tableau

Quickly get started with pre-configured Alteryx workflows and the corresponding Tableau visualizations. Conduct advanced data blending, data transposing, polygon creation, XML parsing, standardizing unstructured data, predictive A/B testing, survey analysis, retail location selection, and market basket analysis with this starter kit.

Alteryx Starter Kit for Microsoft

Blend disparate data from multiple sources, perform advanced analytics such as predictive and spatial analysis with no coding required, incorporate text analytics using Azure ML, and output data directly to Microsoft Power BI for your visualization and reporting needs.

Predictive Analytics Starter Kit

Learn how to build core predictive insights, from developing a proper dataset to analyzing the results, with this interactive, step-by-step tutorial that doesn't require you to have a background in statistics, R-coding or other specialized skills.

Alteryx Starter Kit for Qlik

Perform data transposing, polygon creation, multi-channel analysis, predictive A/B testing, retail location selection, market basket analysis, and survey cleanup, all with direct output for visualization in QlikView or Qlik Sense.

Alteryx Starter Kit for Salesforce

Uncover insights regarding account executive performance, customer segmentation, customer service levels by representative, prospect prioritization, and the health of your sales pipeline and view the corresponding output in Salesforce Wave Analytics.

Alteryx Starter Kit for Marketing Analytics

Jumpstart your marketing analytics with pre-configured Alteryx workflows and the corresponding Tableau visualizations. This kit includes everything you need to perform Customer Acquisition Analysis, Customer Segmentation, Customer Sentiment Analysis, Lifetime Value Analysis, and Offer Responsiveness.

Alteryx Supply Chain Analytics Starter Kit

Build vendor evaluation insights, predictive inventory analysis or demand forecasting models with interactive, step-by-step templates, which you can then modify to incorporate your own data.

Product Training and its many flavors

Live Training

Visit **https://community.alteryx.com/t5/Live-Training/bd-p/live-training** for Online instructor-led training sessions covering a range of topics from getting started with Alteryx to advanced predictive analytics. These training sessions focus on practical use cases geared to illustrate how to use individual tools in Alteryx to construct an analytical solution. Can't make one of our future sessions or want to watch a previous session? Access all previous session recordings and workflows all in the same location.

Weekly Challenge

Visit **https://community.alteryx.com/t5/Weekly-Challenge/bd-p/weeklychallenge** to participate in our weekly challenge. The challenges are a fun and interactive way to engage with the Alteryx Community and sharpen your skills. Previous weekly session exercises make great training materials to help ramp up new teammates.

Product Training

Alteryx offers an abundance of training online at **http://www.alteryx.com/product-training**. The Getting Started section is great for beginners and includes short videos, accompanying help files, and exercises to solidify the concepts. The On Demand videos cover a variety of topics and can be used to learn about a subject in general or you can watch a video pertaining to the tool or process you are specifically interested in exploring. The **Self-Paced Training** section contains various exercises at the Beginner, Intermediate, and Advanced skill levels for users to download and complete at their own speed. Solution files are also available for download here so you can compare your answer to a best practice solution.

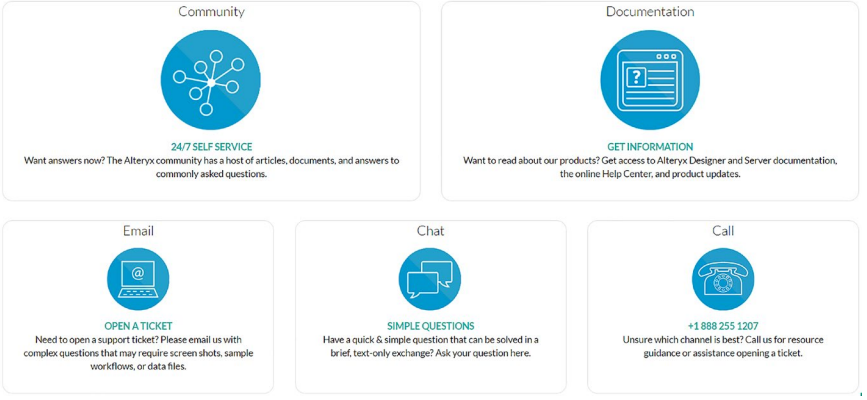
Alteryx Support team… at the ready!!

There are three ways to contact Alteryx for support:

Community (24/7 Self Service): Want answers now? The Alteryx Community has a host of articles, documents, and answers to commonly asked questions.

Email (8-8 EST): Need to open a support ticket? Email support@alteryx.com with complex questions that may require screenshots, sample workflows, or data files.

Chat (8-8 EST): For quick and simple questions that can be solved in a brief text-only exchange.



Licensing

For information on how to activate and manage a license, visit Community for our in-depth licensing series

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Licensing-Series-Part-1-Welcome-to-Alteryx/ta-p/37534

Installing a license:

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Licensing-Series-Part-2-Installing-Licenses/ta-p/37626

Managing a license:

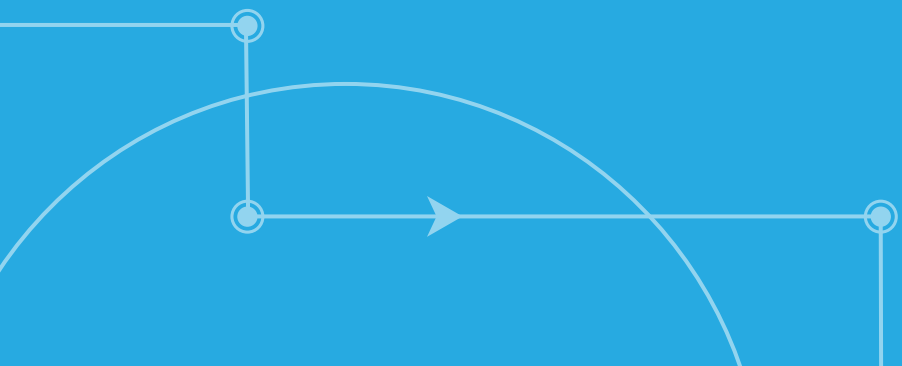
https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Licensing-Series-Part-3-Managing-Your-License/ta-p/37715

Information on license errors:

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Licensing-Series-Part-4-License-Errors/ta-p/37811

If your question isn't answered in the community articles, you can get support for licensing by emailing **fulfillment@alteryx.com**

Getting Started – Workflow Design



Getting Started – Workflow Design

Set yourself up for success

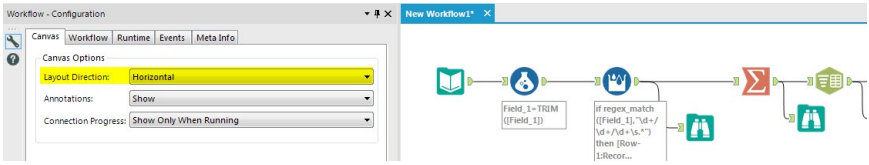
Make yourself comfortable to design your workflows by changing default settings to match your style. The User Settings option will allow you to do just that. It can be found at Options > User Settings > Edit User Settings.

Personalize your Alteryx canvas

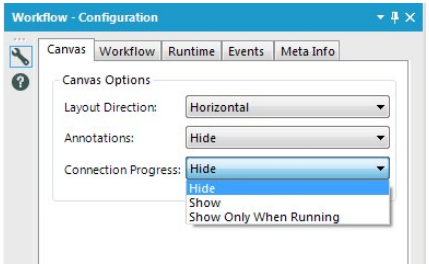
Personalize the layout direction, zoom levels, container colors, canvas/ grid colors, and annotation settings by changing the defaults at Options > User Settings > Edit User Settings > Canvas or on a workflow by workflow basis as explained below.

Workflow Layout

Build out your workflows vertically or horizontally. To change a single workflow, click anywhere on your canvas, and in your Workflow – Configuration window, under Canvas options, select your Layout Direction as horizontal or vertical.

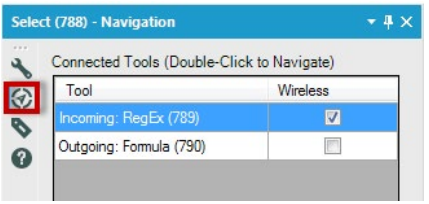


Connection Progress:



The Canvas tab under Workflow – Configuration provides three options for the Connection Progress. If you prefer an uncluttered look, you can "Hide" the connection progress. If you'd like to see it as your workflow is processing, you can select "Show Only When Running". If you'd like to be able to take a closer look at the number of records process, e.g. if you are troubleshooting a workflow, you have the option to keep them visible, "Show", even after the workflow has finished processing.

Arrows:

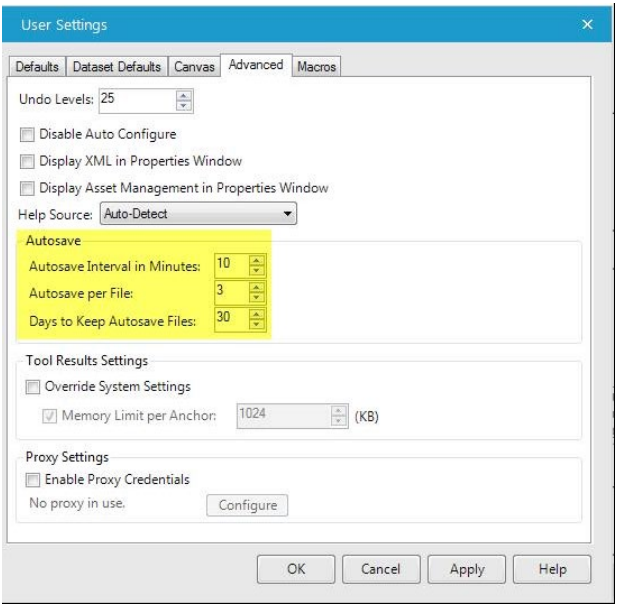


Does your tool connector arrows get a little confusing? You can change your loopy connectors to perpendicular or straight lines under Options > User Settings > Edit User Settings > Canvas. You can even make your connections Wireless! Right-click on any tool to select wireless Incoming or Outgoing connectors or select the wireless checkbox under the navigation for the tool.

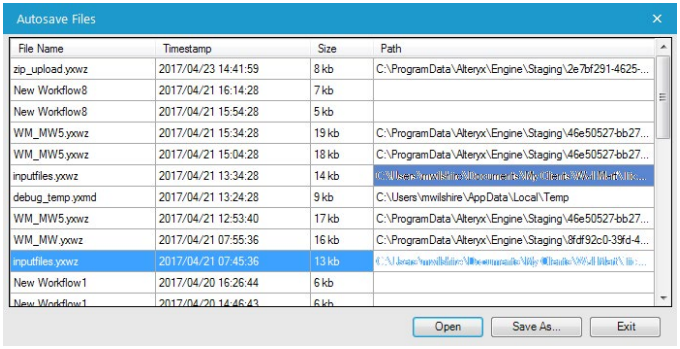
Turn back time with Autosave Workflows

The Autosave feature allows you to save the workflow you are working on at the time intervals of your choosing.

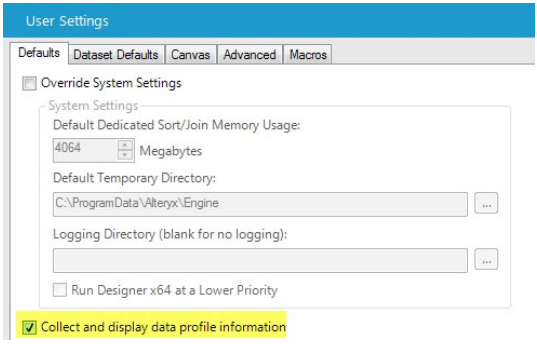
Find the Autosave settings at Options > User Settings > Edit User Settings > Advanced.



Access your autosaved files by navigating to File > Open Autosaved files, a list of available files will appear for you to select.

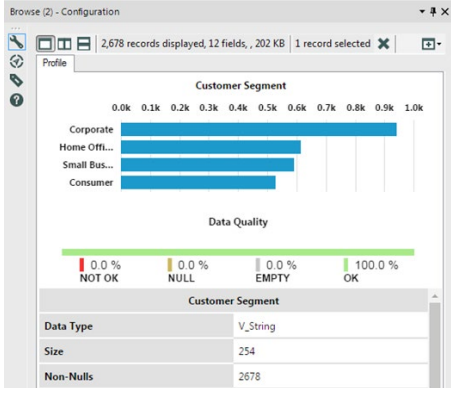


Collect and display data profile Information *NEW to 11*



By default, Data profiling is selected, you can turn this off by unchecking the Collect and display data profile information on Options > User Settings > Edit User Settings > Default tab.

The Browse tool was enhanced for 11 with Data Profiling, this information will give you insights on the quality of the data. The Browse Configuration window displays different charts and metadata depending on the type of data in the column selected in the Results window.



By default, the first column of data in the Results window displays in the Configuration window. Click a different column to view its data in the Configuration window.

FROM THE TIP MEISTERS:

Data Quality color code by your Customer Support team.

Quickly look at the Data Quality section in the Profile tab of the Browse tool when selecting that field you want to check. Red is for Not OK (maybe white spaces), Yellow is for Null because there are no values, Gray for Empty and Green for Good to go.

Bringing your data in

Different ways to bring-in data to match your style

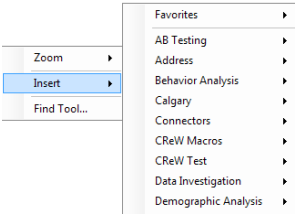
We've seen our users bringing in their data using different techniques. Here are the ones we've seen the most that are the most fascinating. Try one of these or come up with one that matches your own style.

Standard Drag and Drop

This is the one you will see on Alteryx training videos. Find the tool you need on the tool palette, click on it to select and hold it, then drag and drop it into your canvas.

Insert tool in canvas

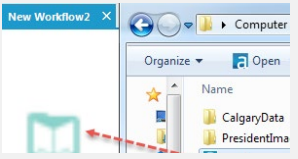
One of our Grand Prix winners used this one during competition and under lots of pressure!! Right-click on the desired place on the canvas then choose Insert. This will present you with all the tool categories- navigate to your tool from there.



FROM THE TIP MEISTERS:

From Windows Explorer to Canvas by SeanAdams

Another fast way to add your data sources to your canvas is by dragging the data file from Windows Explorer and dropping it to the canvas.

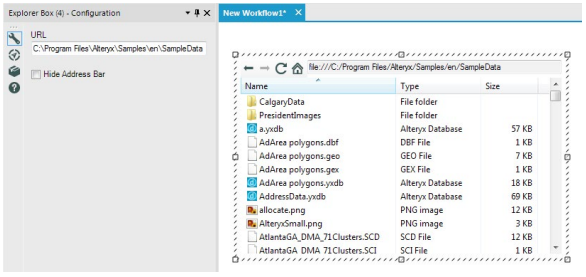


FROM THE TIP MEISTERS:

Saving time at Opening by Barnesk

A fast way to open workflows when Alteryx is already open, drag the workflow file (YXMD) from Windows Explorer and drop it on the canvas; the workflow will open in the same window but on a new tab. This saves lots of time because you don't have to wait for a new instance of Alteryx to open each time.

Explorer Box



This handy dandy tool allows you to point to a directory to show all the files contained. From there (as explained above), drag one or more files from the list and drop them to the canvas.

FROM THE TIP MEISTERS:

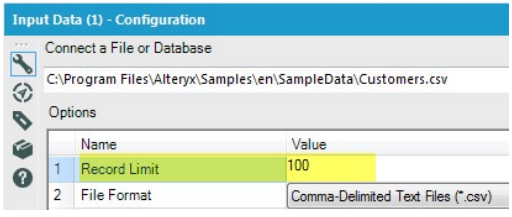
Create fast test Inputs by chris_love.

Copy and Paste from a Browse tool back to the canvas to create a Text Input containing the data. Great way to fast "test" inputs or to create fast lookups / data cleans.

Set New Record Limits

The Record Limit setting in the Input Data tool can be very helpful at workflow design time.

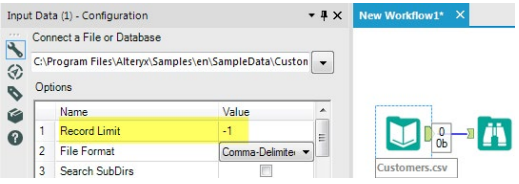
Limiting the number of records coming in while building your workflow will speed up testing. This will return the top records.



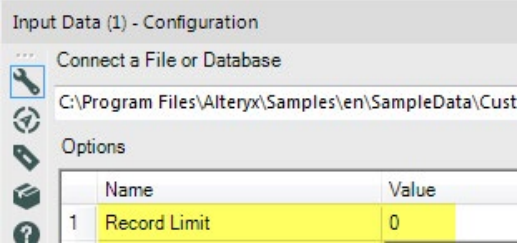
FROM THE TIP MEISTERS:

Record Limit to All Inputs by Alberto Guisande

Record Limit all the Input tools in the workflow at once: Workflow Configuration > Runtime tab > Record Limit for All Inputs. When Record Limit is set on the file and to All Inputs, the smaller number takes precedent.



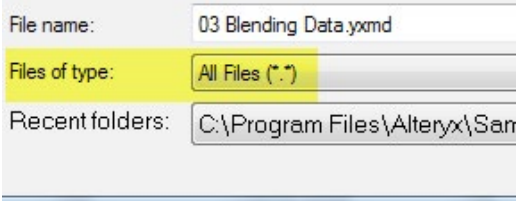
When in need of just the metadata, Record Limit to -1



Record Limit set to 0 returns the maximum size of an Int64.

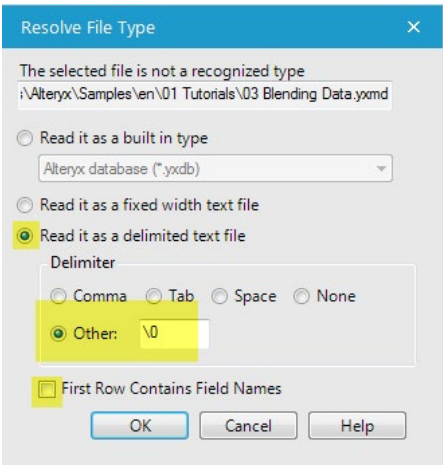
No Data File type... No Problem!

Want to open a non-data file type? Bring it on! One common use case is an Alteryx workflow (.YXMD).



In the Open a Data File dialog box, make sure to select All Files (*.*) for Files of type:

For the Resolve File Type dialog box, use \0 as the delimiter and uncheck the First Row Contains Field Names box. All your data will be placed in one field, therefore, make sure to set the Field Length (in the Input Data Configuration) to a much bigger size to accommodate all the data.



#alteryx17

FROM THE TIP MEISTERS:

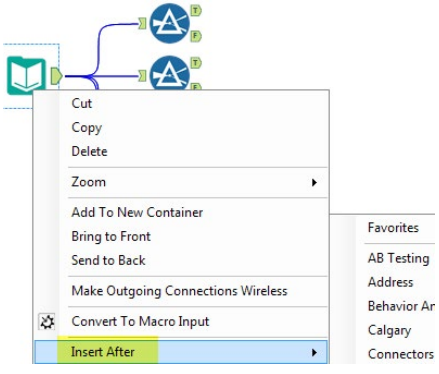
Delimiter \0 is for no delimiters by your Customer Support Team

This can be useful whenever running into delimiter issues such as a CSV file with extra commas. Bring your data with \0 and it will ignore delimiters, placing all your data in one field. Increase the Field Length and use the Text to Columns to split your data up.

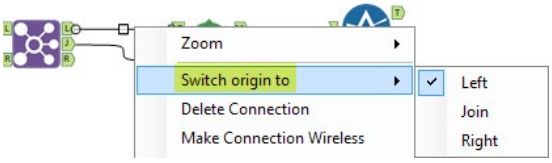
No need to Reconnect

Connecting and Reconnecting tools on our canvas is how we build our masterpieces a.k.a. workflows.

We've all been there, the light bulb goes off: "I'd be better if I add this one tool right after this other one, but it has multiple outgoing connections". No need to reconnect, Right Click on the tool then select Insert After and select the tool to Insert. All the connections will go out of the inserted tool.



When the tool has multiple outputs we can later decide which output is better to switch to without the need to reconnect, Right Click on the connection > Switch origin to



FROM THE TIP MEISTERS:

Delete and Connect Around by your Customer Support team.

When deleting a tool that is connected, Right Click on the tool and select Delete and connect around. This won't be enabled for tools that have multiple inputs and/or outputs.

Refresh with F5 and other shortcuts

Remember when you were younger and the old people told you that you had to do everything the long and hard way? Well now that we're the adults, we can do whatever we want – like take shortcuts without receiving any of those disapproving looks. We've got you covered when it comes to cheating the system, with some of our favorite Shortcuts.

F5 is for Refresh tool configurations, two common use cases:

Your incoming data source has been updated or is just different- Press F5 to refresh all the tools with the new metadata.

By design, tool configurations are not being refreshed If the **Disable Auto Configure** option has been selected in the User Settings—press F5 to manually refresh tool configurations.

FROM THE TIP MEISTERS:

Disable Auto Configure by your Customer Support team.

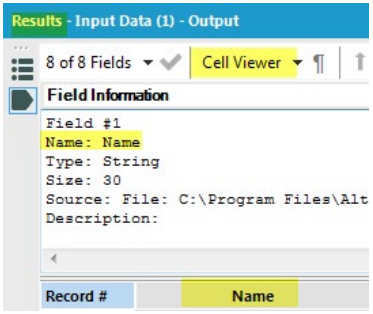
Editing your complex workflow, your big data source is located on the network drive or Allocate tools are present, check this box (Options > User Settings > Edit User Settings) and you may find resources are better allocated and optimized.

More shortcuts at **https://help.alteryx.com/11.0/index.htm#HotKeys_Shortcuts.htm?**

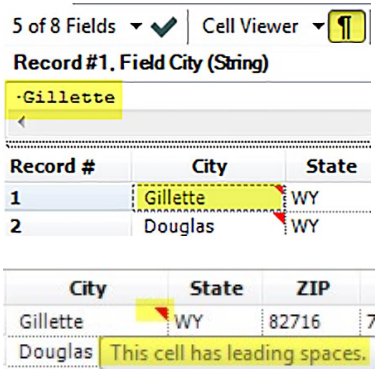
Just Browsing

Our humble yet insightful Browse tool is one of the most used tools in the tool palette and the Results window allows for fast development. It's like discussing social drama- we shouldn't, but we just have to take a look.

Cell Viewer



Available on the Browse tool and Results window, Click on the Cell Viewer to view metadata for each column (when clicking on the column name) or the content of a selected cell (when clicking on the data).



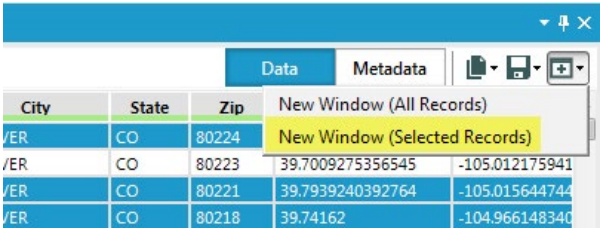
Easiest way to see white space or hidden characters in your data. Click on the cell and make sure to have the Show Whitespace icon selected. Notice the red corner, if you hover over it will give you additional information:

FROM THE TIP MEISTERS:

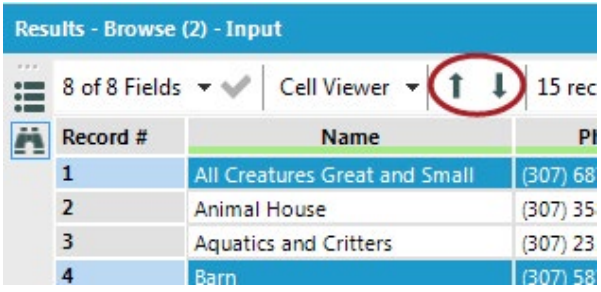
New Window for the selected few by JoeM.

Easily compare two or more records in the Browse tool with two different methods below:

Highlight the desired records with Ctrl + Click/Drag, then go to the 'Open results in a new window icon' on the upper-right corner and select: New Window (Selected Records)



Highlight the desired records with Ctrl + Click/Drag, go the up and down arrows on the top bar of the results window and use them to toggle between all of your selected records

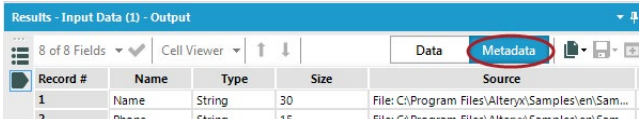


Rapid Results

Accidentally closed the results window? No need to go back into the View menu to enable it. Simply click on the anchor for any tool on your canvas and the Results window will reappear...magic!

We got your Metadata covered

The Results window has your data's metadata, no need to run the workflow to see it.

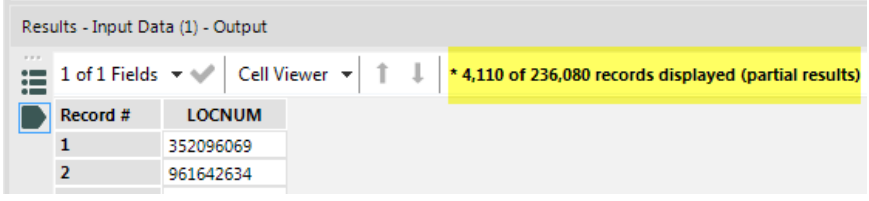


FROM THE TIP MEISTERS:

Metadata on the connection by your Customer Support team.

Designing on your canvas and need to quickly see the metadata, wanting to save precious seconds? Click on the connection to see the metadata moving through that connection.

Anchor Limits



By design, the Results window displays up to 1 MB or data or up to 1,000 bytes of string data, for each tool anchor, to make the viewing of your data quickly available without the Browse tool. A message of (partial results) will show if your data size exceeds this limit.

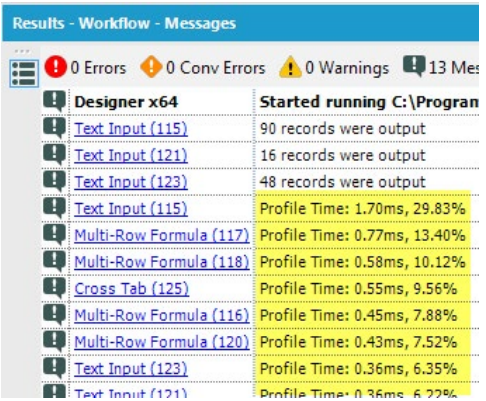
FROM THE TIP MEISTERS:

Adjust Memory Limit per Anchor by your Customer Support team

Adjust the memory limit per anchor in the User Settings (Options > User Settings > Edit User Settings > Advanced tab > Tool Result Settings). It can also be adjusted in the System Settings > Engine

Performance Profiling

The Results window will display the percentage of time spent processing each tool if Performance Profiling is enabled (Workflow Configuration > Runtime tab)



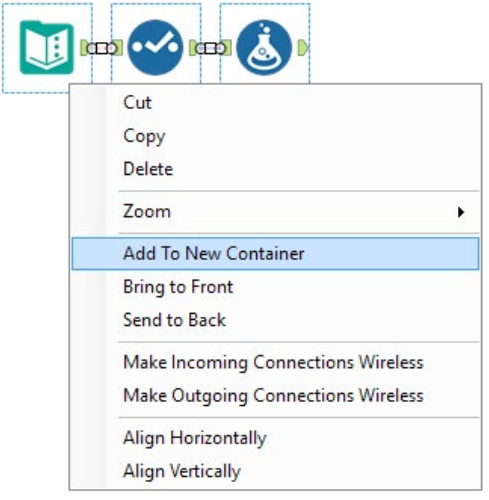
Mad about organization?

We understand that in addition to functionality, everyone wants their workflows to be the prettiest they can be. In 11, shortcuts have been added to increase your efficiency and to keep tools lean and mean.

Slick enhancements to Comment and Tool Container *NEW to 11*

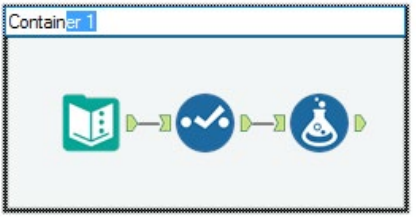
Add to New Container

A new option helps you quickly group tools into a container by selecting one or more tools on the canvas, right-clicking, and clicking “Add To New Container”.



Update Caption directly on tool

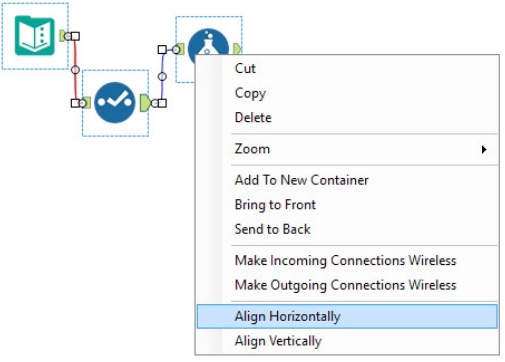
The Comment tool and the Tool Container tool text can now be edited by double-clicking them on the canvas and typing directly in the box.



FROM THE TIP MEISTERS:
Auto-Expanding Tool Containers by JohnJPS

Put long/short comment along the top and tall/skinny comment along the left, stretch these to size the tool container to your desired fixed size.

Got a workflow that's trying to do its own thing? Into formation! It's the align you've always dreamed of...your tools in the canvas. Align the, Horizontally or Vertically. Your preference!



FROM THE TIP MEISTERS:
Shortcuts to align your workflows by TaraM

If you're a bit OCD about perfectly aligned tools and connections in your workflow, then you are going to love these shortcuts! Use Ctrl+Shift+- or + to align vertical or horizontal.

FROM THE TIP MEISTERS:
Aim and Paste by Garrett.

Right Click & Paste to control where copied tools get placed on the canvas, rather than Ctrl-V.

FROM THE TIP MEISTERS:
Document for your own good by jason_m_mack.

Use the tools in the 'Documentation' toolset to keep things clear and clean for others to understand (or your future self when you get asked to update something you haven't touched in 6 months)

FROM THE TIP MEISTERS:
Comment your Expressions by tom_montpool

Tools with an Expression panel support block comments (/*Comment*/) and single line comments (///Comment) allowing more documentation capabilities over and above the Comment tool and the tool annotations.

Nimble Navigation

When the time comes when your little workflow is not so little anymore, you'll need these navigation tips & tricks handy.

If scrollbars are not your thing, press on the mouse wheel and move up/down or left/right, or the combination of space bar + Right Click.

The Overview view (in the View menu bar) allows you to navigate through your workflow while it is running.

FROM THE TIP MEISTERS:
Workflow Navigation by AdamR.

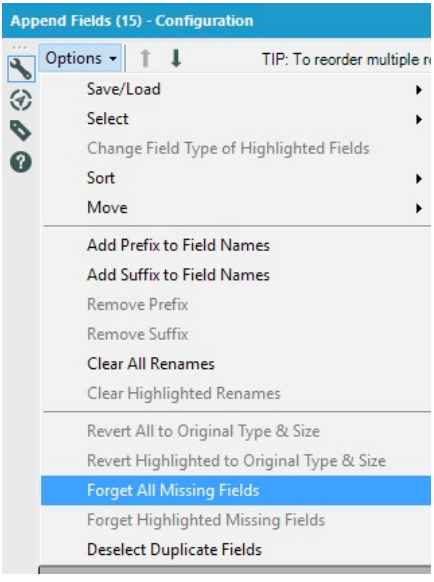
- Double click the scroll wheel on your mouse zooms to whole workflow. (Ctrl + 0 for the keyboard shortcut lovers)
- Right click drag selects an area of your workflow to zoom in to.
- Right click on canvas > Zoom to specific tool container.

The Go-To Time Savers

Do you ever have the problem where you have to tell your kids the same thing over and over again? Well, we fixed that issue, if your kids are workflows. Save time (and breath) with these tips!

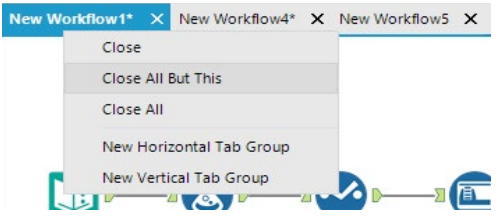
Quickly Forget those missing fields

Ever run into that situation where you need to fix fields downstream and the upstream tools are now cluttered with obsolete fields? Quickly forget those missing fields under the tool configuration > Options tab.



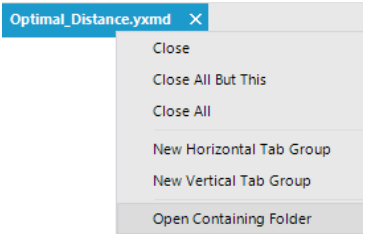
Close All But This *NEW to 11*

Doing a bunch of tests on separate workflows and finally figured it out? Save clicks and go to your main workflow tab, right-click, and Close All But This.



Open Containing Folder *NEW to 11*

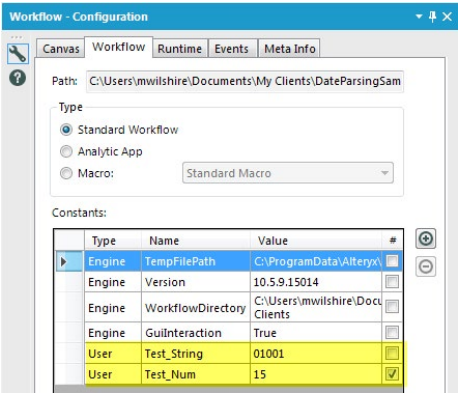
Need quick access to your folder that contains your current workflow? The folder where your workflow is saved can now be opened by right-clicking the



Global Variables, the only Constant is Change

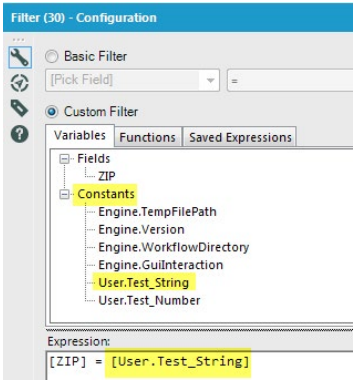
Have you ever needed to change a value in multiple places within your workflow a.k.a. global variables? Within Alteryx, Global Variables are called **Constants**. There are 4 default Engine type constants at workflow level, User constants can be added as needed.

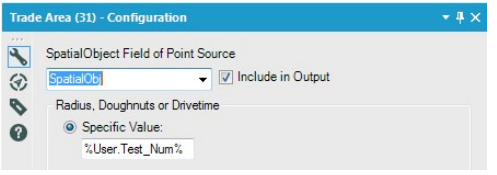
To add a User Constant, Click on the Plus sign on the top right hand corner, give it a name, a value and check the box if it is a number.



Any of the Engine constants or user constants that you create can be used throughout the workflow. To reference it, select Custom Filter then expand the Constants tree.

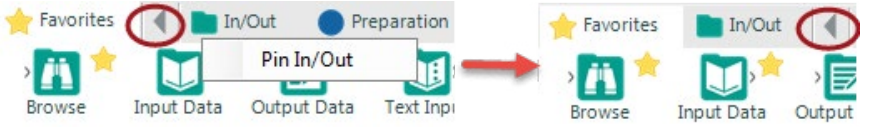
Another way to reference constants is by using **%User.ConstantName%**





Pinned Possibilities

Is there one or more tool categories you use on a regular basis and you find yourself scrolling through the tool palette? Good news, You can pin those categories to the front of the tool palette. Right click on any tool category and select **Pin [Category Name].**



Getting Started – Workflow Optimization

Getting Started – Workflow Optimization

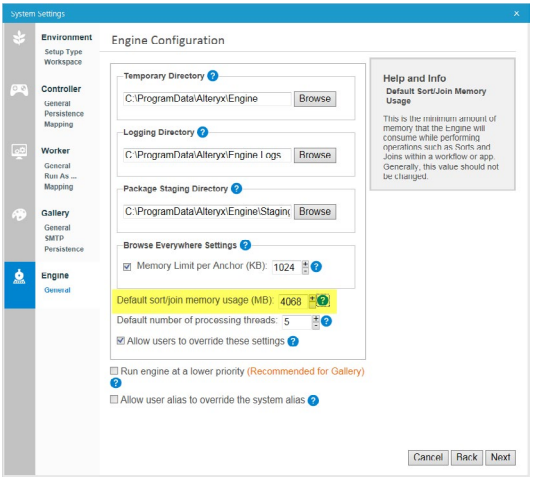
Resource Optimization

Alteryx is designed to optimize its resources in the most efficient manner. To make Alteryx run at the speeds we've grown accustomed to love, it tries to balance CPU use, memory, and disk I/O.

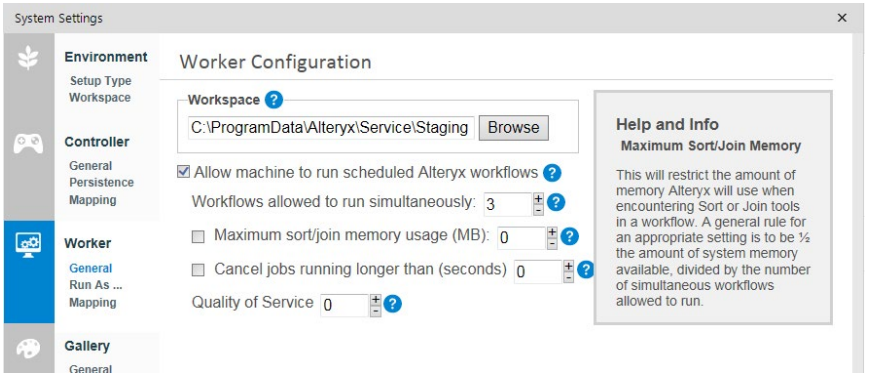
The good news is that most of the resource utilization can be controlled. You can limit the amount of memory that is used on a system, user, or workflow level.

The **Engine Sort/Join memory setting** defines the minimum amount of memory the engine will consume while performing operations such as sorts and joins. Other tools will use memory outside that sort/join block, some of which (e.g. drive times with a long maximum time) can use a lot.

The default sort/join memory set during the install works for most users and usually doesn't need to be changed. Things to consider when changing it: A sort will run faster if it is run entirely in memory instead of using temp files but if it must switch to using virtual memory performance will decrease which is why the setting should not be too high.



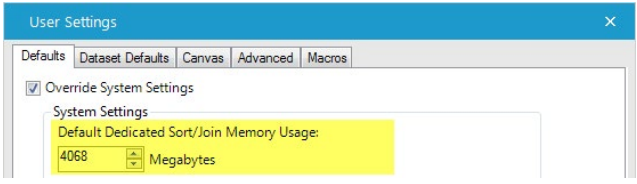
The global Default Dedicated Sort/Join Memory Usage at System level can be found at **Alteryx → Options → Advanced Options → System Settings → Engine → Default sort/join memory usage (MB)**



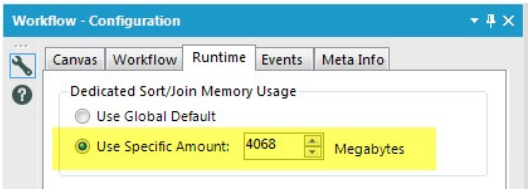
When setting up a machine as a worker for the gallery and/or scheduling, you have the option to restrict the amount of memory Alteryx uses for sort/join operations. This will only affect workflows that are running through the scheduler on the machine. A general rule for an appropriate setting is to be ½ of the amount of system memory available, divided by the number of simultaneous workflows allowed to run. Limiting the number of workflows allowed to run simultaneously in combination with setting maximum sort join usage for the worker is a good way limit conflicts if too many jobs are scheduled to run concurrently and creates a more stable environment.

You can also edit sort/join memory under the user settings if the option "Allow users to overwrite these settings" is checked with the engine settings.

To set a user level default dedicated Sort/Join Memory Usage, go to **Options → User Settings → Edit User Settings → Defaults tab**



Lastly, you can edit sort/join memory at the workflow level: ***Configuration → Runtime tab → Dedicated Sort/Join Memory Usage → Use Specific Amount***



Lower it when doing memory intensive non-sort actions (e.g. driver times), increase it for memory intensive sort-work.

Other considerations:

5. Run Alteryx at a lower priority: This will ensure that the Alteryx Engine runs at a lower priority than all the other applications running on the same machine. By doing so, even the Alteryx GUI will remain responsive when you are running a large Workflow in the background. This is an especially good idea for a shared server and recommend for a server hosting a Gallery. **Alteryx → Options → Advanced Options → System Settings → Engine**

6. Shared Servers: For a shared server, the system owner/IT person should set the memory to no more than (total memory-2GB)/(Number of Users). This way if all the users are running workflows at the same time the system won't go into virtual memory, which significantly slows things down.

7. Web Servers: When running Alteryx on a web server, you want to set the memory usage to the smallest possible without impacting the performance too much. We recommend trying a system memory setting of 64MB and then increasing the memory on a per workflow basis as needed. It is important to note that the user setting for memory usually has no impact since the web service typically runs as a separate system user. Make sure to use the system settings.

8. Background Processing: Any time you are planning to run a workflow in the background while continuing to do other work, it is a good idea to run it with less memory.

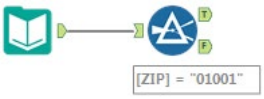
9. It is also a good idea to have the temporary directory point to a separate physical hard drive from your boot drive. If your temp drive points to C:\temp and you run a Workflow that consumes 100's of GB of Temp space (it happens), your system may become unstable.

Lean for Speed

Select Data to be processed with Select...

A best practice to optimize the performance of your workflows is to remove data that won't be needed for downstream processing as quickly as possible. The **Select** tool removes columns from your data. Some other tools (e.g. Join, Join Multiple, Spatial Match, Find Nearest) also include select functionality.

...and Filter Tool:



Another good way to optimize workflow performance is using the **Filter** tool to remove unnecessary rows. The filter tool lets you split your data into two separate data streams that can then be treated differently (or ignored if one data set is not needed downstream).

FROM THE TIP MEISTERS:
Developing workflows with large databases from danielbrun:

If you are reading large DB inputs or bulk loading excel/csv files, it is in most cases worth to write it to a .yxdb and continue to work with that .yxdb until the flow is done. This is also the case when using the download tool. Save the data locally and work on from there.

Assign most efficient data types with the AutoField Tool

Optimize your workflow for speed by setting the field type to the smallest possible size and most efficient field type. String fields with a big size can be costly and carrying them through your workflow will slow it down. Use the **AutoField tool** right after your Input Data tool to assign the most efficient type and size to your fields.

Below is an example of data types before and after the **AutoField tool**:

Results - Auto Field (3) - Input

10 of 10 Fields | Cell Viewer

Record #	Name	Type	Size
1	Store Num	V_WString	255
2	Address	V_WString	255
3	City	V_WString	255
4	State	V_WString	255
5	ZIP	V_WString	255
6	Lat	V_String	255
7	Lon	V_String	255
8	County	V_WString	255
9	Region	V_String	255
10	Type	V_String	255

Results - Auto Field (3) - Output

10 of 10 Fields | Cell Viewer

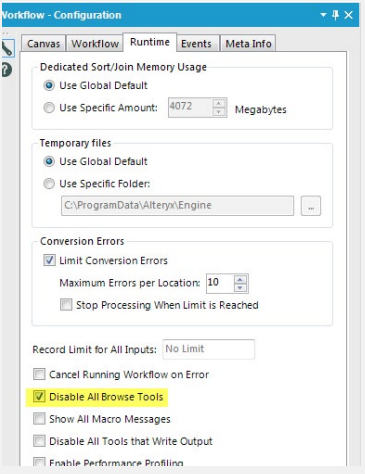
Record #	Name	Type	Size
1	Store Num	Int16	2
2	Address	V_String	40
3	City	V_String	17
4	State	String	2
5	ZIP	Int32	4
6	Lat	Double	8
7	Lon	Double	8
8	County	String	15
9	Region	String	5
10	Type	String	4

Another benefit of using the AutoField tool is that it will reduce the size of your output file.

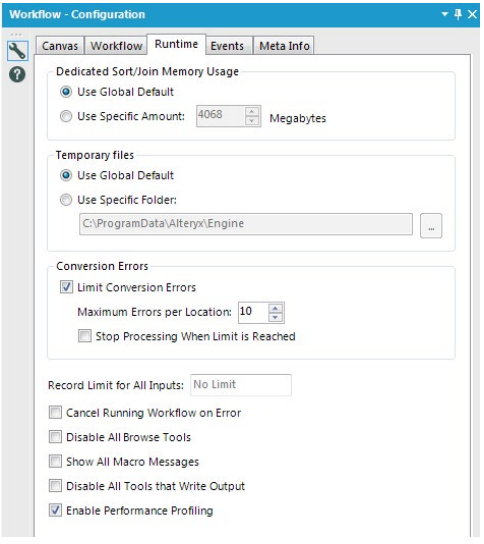
#alteryx17

FROM THE TIP MEISTERS:
Disable All Browse Tools from danielbrun and tom_montpool

The Browse tool quickly becomes a data artisan's best friend; it allows to see/review the entire data at any given step in the workflow building process. However, each of these browse tools creates a temporary yxdb and writing these files does take some time and slows down processing. When the workflow is ready for production it is better to remove them. There is an option to just disable them so they can be easily enabled if needed. This setting can be found at **Workflow > Runtime > Disable All Browse Tools**



Performance Profiling



Performance profiling displays all tools and their runtimes (in descending order) in your output log. Creating this output takes resources and slows down processing which is why it is not enabled by default. It can be enabled under **Workflow Configuration > Runtime**

If it slows down processing, why would you use it? Seeing which tool takes the most time to process can help you determine where to start working on making your workflow more efficient. It can also help you determine where differences are if the same workflow takes longer to process on one computer versus another.

Getting Started - Data Preparation & Blending

Getting Started - Data Preparation & Blending

Multi Field and Multi Row Formula Tools

Multi Field Formula Tool

The Multi Field Formula tool makes it easy to execute a single function on multiple fields.

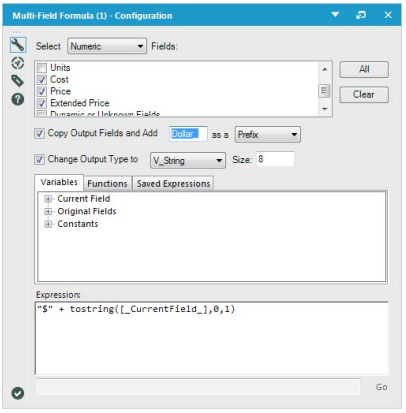
It will present you with a list of fields to select. You can either select numeric or text fields. These are the fields that the formula will manipulate, all other fields will remain untouched. This does **NOT** function as a select tool removing fields from the data stream.

You have the option to overwrite the existing fields or to create new fields. If you decide to copy the fields, you will have the option to change the field names by adding a prefix or suffix.

You also have the option to change the output type. This is convenient if you are converting dates to strings, or numbers to strings to format them.

Selecting [_CurrentField_] under the variables will modify **all** of the selected fields. You also have the option to use specific fields.

In this example, the fields Cost, Price, and Extended Price are being changed to text fields, with a "$" symbol and separating commas added to the number. E.g. 463956 is changed to $463,956.

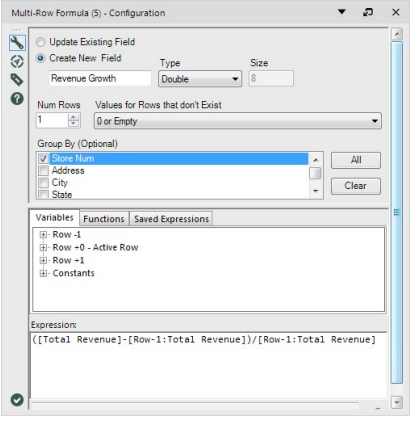


This tool is also convenient if you are working with data that was manually entered by a user as it lets you perform data cleaning actions (e.g. TRIM()) on all of your fields.

See also the help section for the **Multi Field Formula**.

Multi Row Formula Tool

The Multi-Row Formula tool takes the concept of the Formula Tool a step further, allowing the user to utilize row data as part of the formula creation. This tool is useful for parsing complex data, and creating running totals, averages, percentages and other mathematical calculations.



Assuming that the data is sorted correctly, the below example will calculate Revenue Growth by Store and create a new column for the percentages.

See also the help section for the **Multi Row Formula**.

Combined Multi Row and Multi Field Formula Tool Example

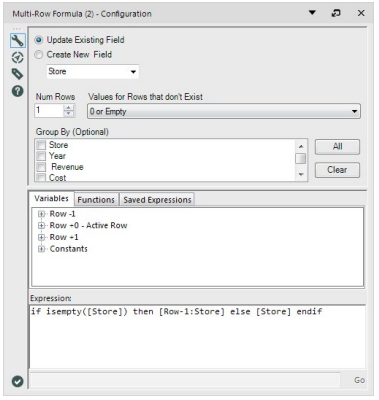
Have you ever seen data like this and wanted to bring the Store forward to fill in the blanks?

Results - Text Input (1) - Output

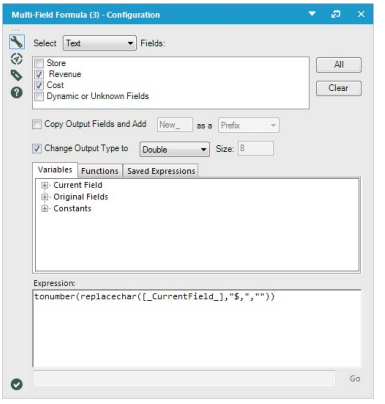
4 of 4 Fields | Cell Viewer | 16 records displayed

Record #	Store	Year	Revenue	Cost
1	Store A	2013	$256	$128
2	[Null]	2014	$238	$119
3	[Null]	2015	$589	$295
4	[Null]	2016	$2	$1
5	Store B	2013	$3,698	$1,849
6	[Null]	2014	$3,589	$1,795
7	[Null]	2015	$7,589	$3,795
8	[Null]	2016	$265	$133
9	Store C	2013	$123	$62
10	[Null]	2014	$125	$63

The multi-row formula is your friend! This function will populate the whole store column for you.



But wait! The revenue and cost fields don't look too pretty either. Let's use the Multi Field Formula to clean them up.



The results: Pretty Data!

Results - Multi-Field Formula (3) - Output

4 of 4 Fields | Cell Viewer | 16 records displayed

Record #	Store	Year	Revenue	Cost
1	Store A	2013	256	128
2	Store A	2014	238	119
3	Store A	2015	589	295
4	Store A	2016	2	1
5	Store B	2013	3698	1849
6	Store B	2014	3589	1795
7	Store B	2015	7589	3795
8	Store B	2016	265	133
9	Store C	2013	123	62
10	Store C	2014	125	63

Sometimes You Feel Like a Join, Sometimes You Don't: Joining and Blending Data

The Join tool and many other tools in the joining category have select functionality. Don't forget you can de-select and rename un-needed fields right in the join tools. No need to use a separate select.

FROM THE TIP MEISTERS:

ACE Marquee Crew's Recommendations for Join Vs Find and Replace:

Join is AMAZING if Left and Right inputs have the same record count and order. Suppose that you've used a select tool and do some functions to create new columns of data that you want to join back to the original data. You can use the join and use the "Join by Record Position" configuration (radio button). You can't get any faster than that. Your data is NOT sorted.

If you are joining a Large set of data to a small set of data (Large is large and small is < 32,000 rows) the Find Replace offers you the ability to put the small data into memory and avoid the expensive sort. Imagine with 138 million records using a TILE tool and then looking up eight (8) length descriptors from a text input tool. The JOIN version runs in 3:40 minutes and the FIND REPLACE version runs in 3:09 minutes.

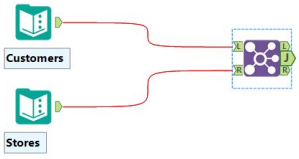
FIND REPLACE also allows for case insensitive and partial matching. If you're ever applying descriptions or labels to values, this is the recommended approach.

FROM THE TIP MEISTERS:

ACE Jarrod's Tip to Rename Fields Before Joining

If you are appending fields using the Join tool, rename the fields with a prefix (or suffix) before joining to another data set that contains the same field names. Then you can union all 3 outputs to complete a full outer join without any issues with misaligned fields.

Consider a use case where you have stores and customers each with addresses. Without adding prefixes the join would produce Right_ prefixes on the data, making it hard to tell which address belongs to the customer and which belongs to the store

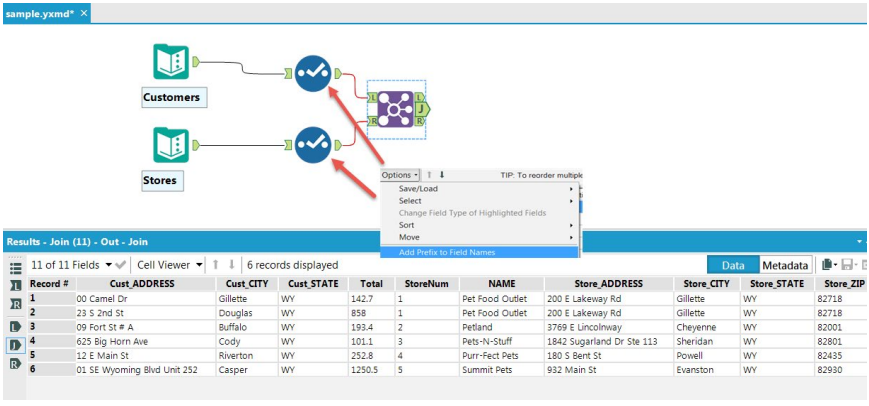


Results - Join (6) - Out - Join

12 of 12 Fields | Cell Viewer | 6 records displayed | Data | Metadata

Record #	ADDRESS	CITY	STATE	Total	StoreNum	Right_StoreNum	NAME	Right_ADDRESS	Right_CITY	Right_STATE	ZI
1	Dr	Gillette	WY	142.7	1	1	Pet Food Outlet	200 E Lakeway Rd	Gillette	WY	8271
2	St	Douglas	WY	858	1	1	Pet Food Outlet	200 E Lakeway Rd	Gillette	WY	8271
3	# A	Buffalo	WY	193.4	2	2	Petland	3769 E Lincolnway	Cheyenne	WY	8200
4	lorn Ave	Cody	WY	101.1	3	3	Pets-N-Stuff	1842 Sugarland Dr Ste 113	Sheridan	WY	8280
5	n St	Riverton	WY	252.8	4	4	Purr-Fect Pets	180 S Bent St	Powell	WY	8243
6	oming Blvd Unit 252	Casper	WY	1250.5	5	5	Summit Pets	932 Main St	Evanston	WY	8293

After adding prefixes, the join fields are neat and clearly labeled with the source they came from.



Results - Join (11) - Out - Join

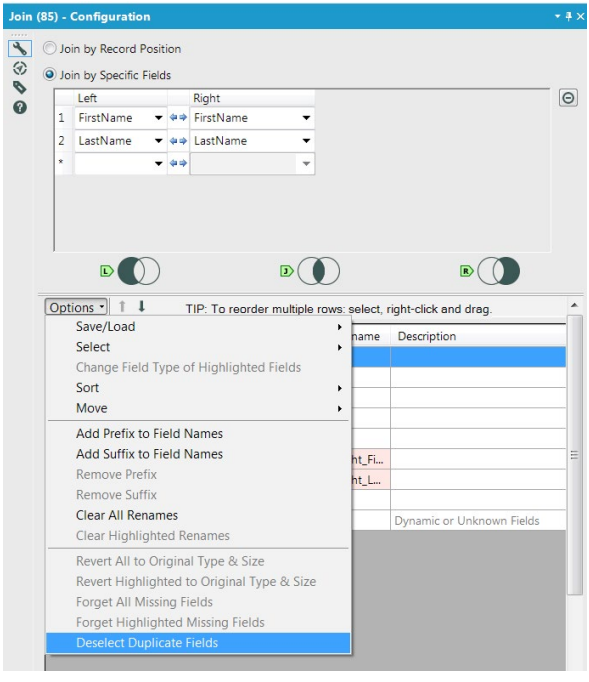
11 of 11 Fields | Cell Viewer | 6 records displayed | Data | Metadata

Record #	Cust_ADDRESS	Cust_CITY	Cust_STATE	Total	StoreNum	NAME	Store_ADDRESS	Store_CITY	Store_STATE	Store_ZIP
1	00 Camel Dr	Gillette	WY	142.7	1	Pet Food Outlet	200 E Lakeway Rd	Gillette	WY	82718
2	23 S 2nd St	Douglas	WY	858	1	Pet Food Outlet	200 E Lakeway Rd	Gillette	WY	82718
3	09 Fort St # A	Buffalo	WY	193.4	2	Petland	3769 E Lincolnway	Cheyenne	WY	82001
4	625 Big Horn Ave	Cody	WY	101.1	3	Pets-N-Stuff	1842 Sugarland Dr Ste 113	Sheridan	WY	82801
5	12 E Main St	Riverton	WY	252.8	4	Purr-Fect Pets	180 S Bent St	Powell	WY	82435
6	01 SE Wyoming Blvd Unit 252	Casper	WY	1250.5	5	Summit Pets	932 Main St	Evanston	WY	82930

FROM THE TIP MEISTERS:

Sean Adams Tip to use Deselect Duplicates in the Join Tool Options

A common issue when viewing joined data is that both streams can share certain fields (in particular, this can be an issue with the join field). Use Options > Deselect Duplicate Fields in order to remove duplicates in one quick and easy step.

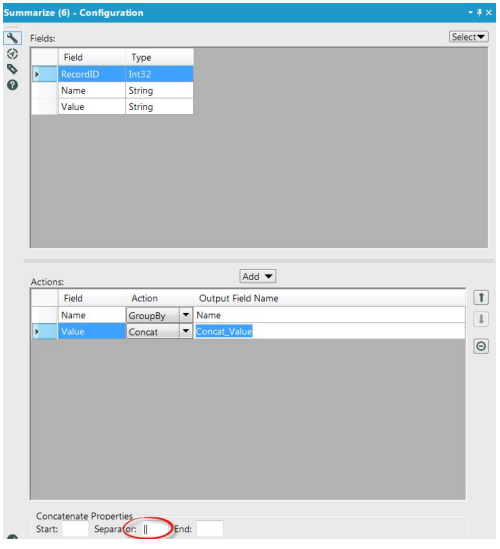


Summarize

FROM THE TIP MEISTERS:

Sean Adams Trick to use summarize for concatenation

Did you know that you can use Summarize to create character-delimited fields? Use the Text-to-columns to disassemble the string. Then use Summarize with a concatenate to put it back together again.



From the Customer Support Team: Remember you can specify the delimiter in summarize when using 'concat.'

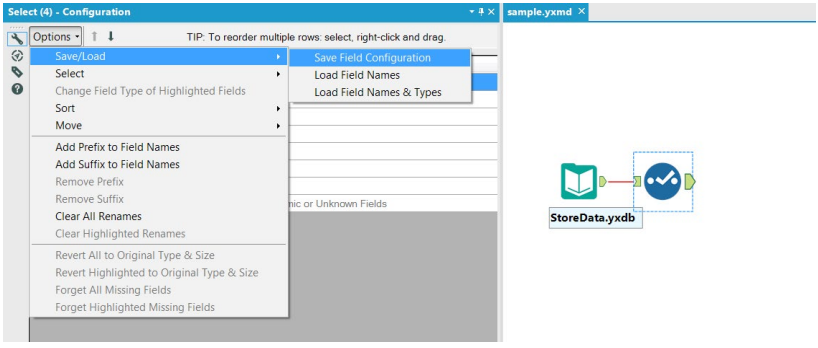
The use case possibilities are endless. This setting is commonly used to create custom delimited files (for example ||)

When You Got It, Select It: Tips and Tricks for the Select Tool

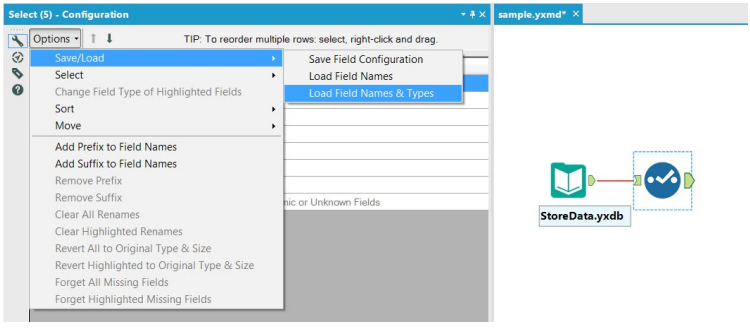
When working with select don't forget to utilize all of the tool's functionality. There are many features in this versatile tool aside from de-selecting and renaming fields. Save time during development by leveraging advanced options in the Select Tool.

Save Select Configuration

Adjusted your field names and types for a dataset and need to use the same selection on a different workflow? Save the configuration



Then load it into another workflow



Other configurations within the Select Tool

To change field type of **all** highlighted rows choose Options > Change Field Type of Highlighted Rows

To move highlighted fields to top or bottom choose Options > Move

To reorder multiple fields at once highlight them, then right-click and drag

Changed your mind? To revert to incoming field order choose Options > Sort

FROM THE TIP MEISTERS:
ACE JohnJPS's Forget Missing Fields Trick

After changing your data set, choose options > forget all missing fields to remove the missing fields from your select tool. This will make configuring the fields much easier and give you a cleaner look.

FROM THE TIP MEISTERS:
ACE Hollingsworth's Unknown Fields Trick

When you have a stable workflow that you want to use in a production environment, put a Select tool directly after the input and uncheck the row labeled *Unknown at the bottom of the list of fields. That way if your input data changes, then the workflow won't be able to add any new fields that your destination file or database is not expecting.

Plop, Plop, Fizz, Fizz, Oh, What a Formula It Is: Tips and Tricks for the Formula Tool

Have a new expression to write? Remember to check **https://help.alteryx.com/11.0/index.htm#Reference/Functions.htm** for a full list of functions available in the formula tool.

FROM THE TIP MEISTERS:
ACE MarqueeCrew's Optimized If Statement (Range Formula) Trick

When writing range expressions, a common method is to include a top and bottom for each category.

```
IF
 [LENGTH OF RESIDENCE] == 0 THEN 'Less than 1 year' ELSEIF
 [LENGTH OF RESIDENCE] >= 1 AND
 [LENGTH OF RESIDENCE] <= 5 THEN '1 to 5 years' ELSEIF
 [LENGTH OF RESIDENCE] >= 6 AND
 [LENGTH OF RESIDENCE] <= 10 THEN '6 to 10 years' ELSEIF
 [LENGTH OF RESIDENCE] >= 11 AND
 [LENGTH OF RESIDENCE] <= 15 THEN '11 to 15 years' ELSEIF
 [LENGTH OF RESIDENCE] >= 16 AND
 [LENGTH OF RESIDENCE] <= 20 THEN '16 to 20 years' ELSEIF
 [LENGTH OF RESIDENCE] >= 21 AND
 [LENGTH OF RESIDENCE] <= 25 THEN '21 to 25 years' ELSEIF
 [LENGTH OF RESIDENCE] >= 26 AND
 [LENGTH OF RESIDENCE] <= 30 THEN '26 to 30 years'
ELSE
 'More than 30 years'
ENDIF
```

When processing the IF statement, the amount of coding can be shortcut by applying ceilings only

```
IF
 [LENGTH OF RESIDENCE] == 0 THEN 'Less than 1 year' ELSEIF
 [LENGTH OF RESIDENCE] <= 5 THEN '1 to 5 years' ELSEIF
 [LENGTH OF RESIDENCE] <= 10 THEN '6 to 10 years' ELSEIF
 [LENGTH OF RESIDENCE] <= 15 THEN '11 to 15 years' ELSEIF
 [LENGTH OF RESIDENCE] <= 20 THEN '16 to 20 years' ELSEIF
 [LENGTH OF RESIDENCE] <= 25 THEN '21 to 25 years' ELSEIF
 [LENGTH OF RESIDENCE] <= 30 THEN '26 to 30 years'
ELSE
 'More than 30 years'
ENDIF
```

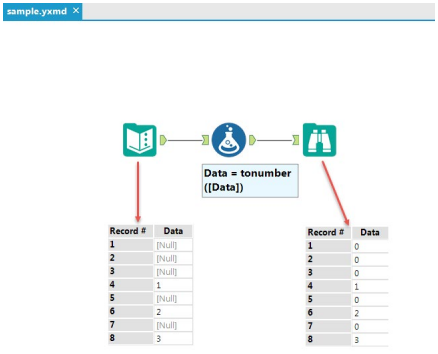
Once the first test is passed, you need not ask the lower range question again.

MarqueeCrew ran a test on the logics above and found timings for "Before" on 135,708,968 records are: 3:24 minutes versus 3:06 minutes. In addition to spending less time coding the formula, there are performance benefits to be realized by the second formula. By knowing where a skew is in a particular category, the formula could be coded to ask that question first.

FROM THE TIP MEISTERS:

ACE Mbarone's Trick to Quickly Remove Nulls in your Data with the Formula Tool

If you have a numeric field that has nulls that you want to quickly change to zero, try using the ToNumber function: ToNumber([Field1]). Also suggested by ACE danielbrun



Other tools in the palette that can help with removing nulls include:

Data Cleansing

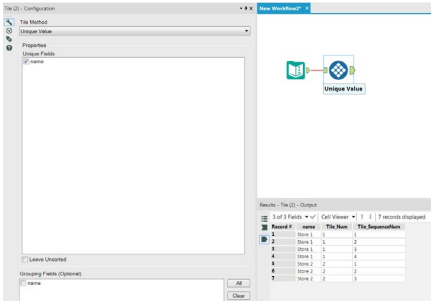
Imputation Tool

Tile Tool

FROM THE TIP MEISTERS:
ACE Mbarone's Tile Tool Trick (Create a Record ID with Grouping)

Ever wanted to create a record ID with a group by? Consider using the Tile tool to create a Record ID for each group in your data.

Simply use the Tile Method "Unique Value" and select the field(s) you would like to have the record IDs "grouped" on. This will reset the record ID (renamed from the "Tile_SequenceNum" field) counter for each unique value in your specified Unique Fields.



Filters, Filters, Everywhere: ACE MarqueeCrew's Trick to Optimize Filtering on Large Datasets

Suppose you are looking at a National file and want to find all households with children that own their own home and live in a specific geography. This might look like: Contains([CHILDREN: AGE 0-18 VERSION 3],"Y") AND [HOMEOWNER: COMBINED HOMEOWNER-RENTER] == "H" AND [FIPS ZIP CODE] == '49033'

Doing this as one statement in one filter tool, you would be testing more conditions (400+MM conditions in the US) than if you first tested for Postal Code then filtered for Residency and/or Presence of Children separately. The Postal Code would net you a few thousand records. The subsequent filter/tests would get you down to the few records faster.

When working with large sets of data this is more apparent and the benefits can add up. There are 169 households out of 139,709,868 records. With one filter the job runs in 3:09 minutes. With three filters the job runs in only 2:08 minutes.

Get More from DateTime: *New to 11*

Custom date formats accepted

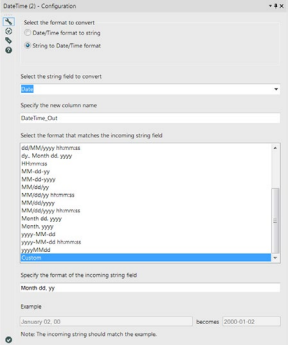
Consider the following data, in Alteryx 10.6, this could not be consumed with the DateTime tool:

Feb 18, 1959
Sep 29, 99
Jun 29, 1991
Dec 29, 1993
april 9, 07

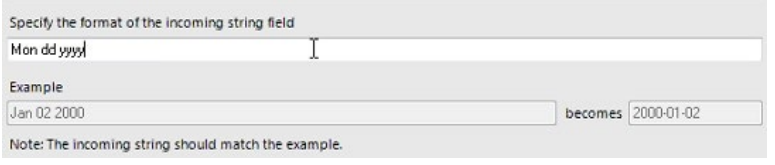
In Alteryx 11, the data can be consumed without error, and give the desired results. Alteryx can handle the distinction between two and four digit years without parsing.

Record #	f	DateTime_Out
1	Feb 18, 1959	1959-02-18
2	Sep 29, 99	1999-09-29
3	Jun 29, 1991	1991-06-29
4	Dec 29, 1993	1993-12-29
5	april 9, 07	2007-04-09

Gone are the days of meticulously parsing custom dates to bring them into the datetime tool. Starting in V 11, Custom Date formats are accepted



Custom format preview:



Users may now type in custom formats and see an example of the output, providing greater flexibility when working with DateTime data

Spatial Tips and Tricks

Spatial Tips and Tricks

Spatial Processing

Spatial Relationship: Spatial Matching Tips

So you have two sets of spatial objects and want to find the spatial relationship between them; the Spatial Match tool would do the job, but how could you set up your inputs into this tool for a faster processing (Universe and Target)? Understanding the following will help you:

1. The Spatial Match tool will put everything in the Universe (U) tab into a temporary YXDB with a spatial index.

2. Then it has to look at every Target (T) object, but it can quickly ignore all Universe-side objects whose bounding rectangles don't intersect the bounding rectangle of the Target object. [A Bounding Rectangle is the rectangle that bounds the spatial object.]

3. As an example, for the common case of a smaller number of larger objects (e.g. Store trade areas) being matched against a large, wide-spread set of smaller objects (e.g. nationwide customer points); it's better to put the large set of wide-spread small objects on the universe side.

4. There are many multiple methods for spatially matching two sets of spatial objects. A venn diagram of each of those methods can be found in the Spatial Match Tool's Help Menu.

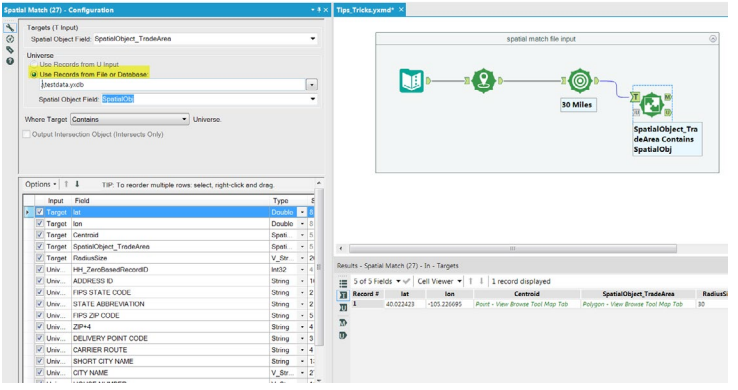
5. The records that come from the Match (M) tab will be Target (T) records whose object had a match from the Universe (U) stream. The Universe object and selected fields are joined to the Target Record. The records from the Unmatched (U) tab will be Target records whose object had no match from the Universe stream.

6. The IMPORTANT Message is: The Spatial Match can ignore most Universe records that won't match the Target record without even looking at them.

Other Spatial Match Optimization Tips

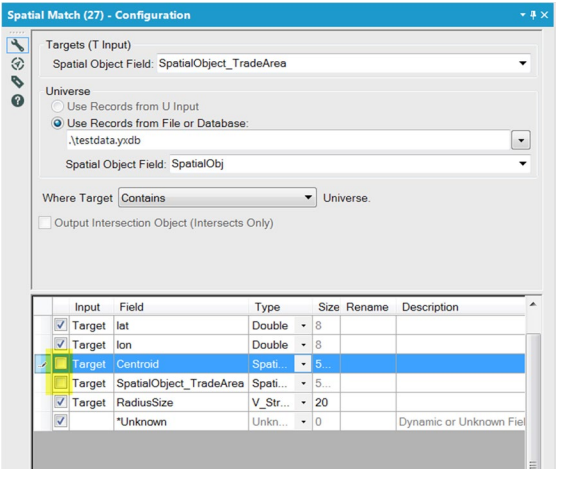
Use File Input

When using spatial process with large datasets, consider using file input within the tool for increased performance.



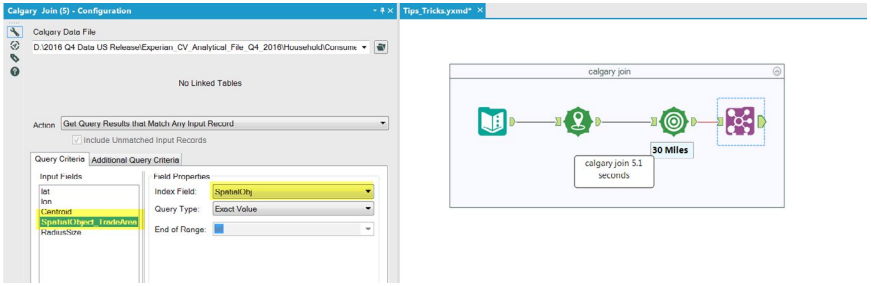
Lighten the Load: De-select Unnecessary Spatial Objects

For faster downstream processing, use the spatial match configuration to de-select un-needed spatial fields.



Spatial Matching Point in Polygon intersections with Calgary Join

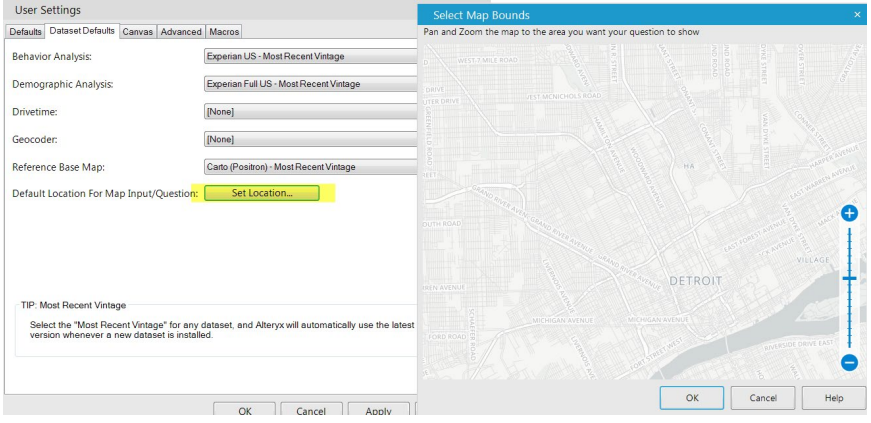
For large point in polygon spatial matches consider loading the point layer to a Calgary layer, then using a Calgary join tool. Configure the join to map spatial field to spatial field.



Map Input

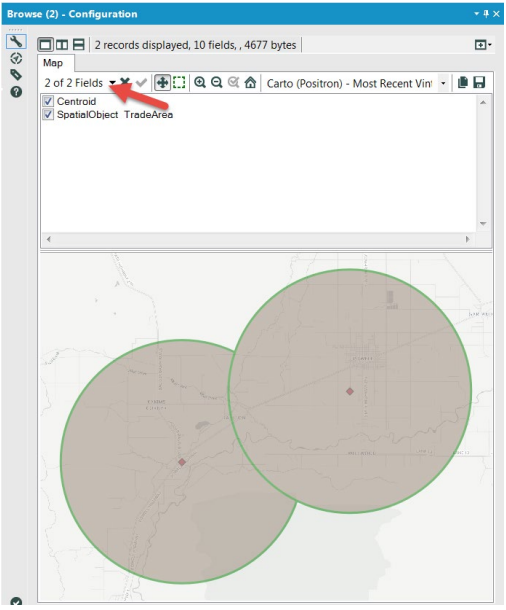
Set default location

To make development faster, use a default location for the map input tool so you don't need to scope each time



Browsing Spatial Data

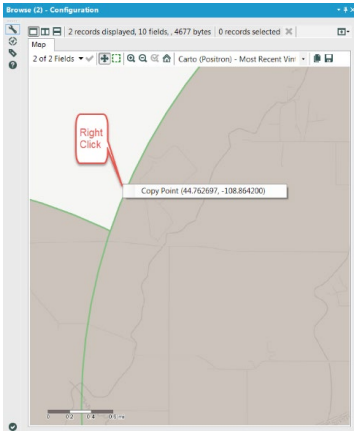
Control Which Spatial Objects Show in Browse Tool

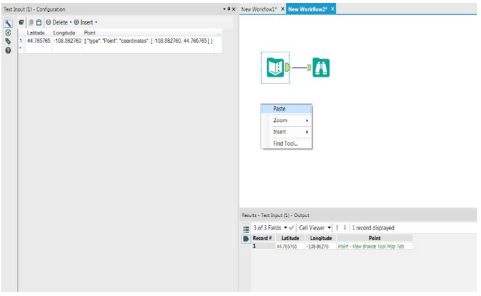


Click on the top left of the browse configuration where it shows the number of fields in order to expand a menu for layer selection. Use this interface to de-select unwanted layers in order to give yourself a cleaner view or to view features that overlap each other.

Copy Spatial Features from Browse Tool

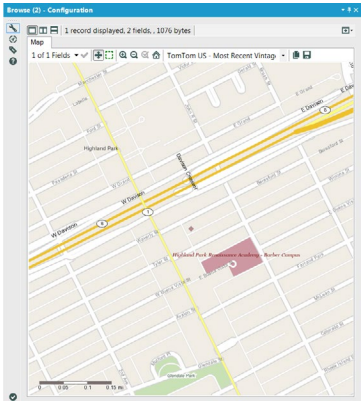
Right click on a point in a browse tool to copy the coordinates. Then right click anywhere on the canvas to paste the copied point in as a new text input with spatial object





Tom Tom Spatial Data Extraction

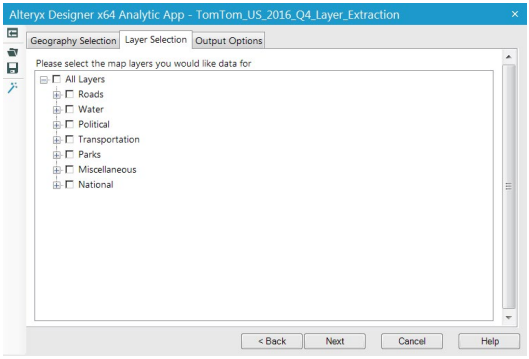
Looking for spatial data to use in Alteryx such as roads or schools? Did you know you can extract the spatial data that powers the Tom Tom Base map when you have a spatial license? Alteryx users who have purchased the TomTom Alteryx Maps data set can extract layers into various formats using the Tom Tom Layer Extraction App.



Look for the App in the location where you installed the Spatial Data. The default location is listed below.

C:\Program Files (x86)\Alteryx\DataProducts\AlteryxMap\TomTom_US_2016_Q4\Analytic_Apps

Run the App to select layers by geography and extract them to a location on your machine as yxdb layers.



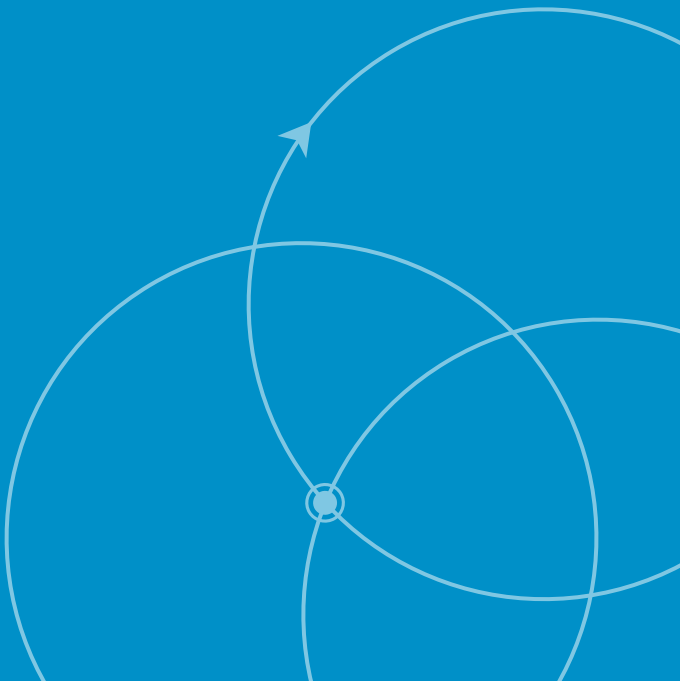
Or, if you prefer, you can access the file for all geographies by locating the Data folder in the install directory.

Default data location:

C:\Program Files (x86)\Alteryx\DataProducts\AlteryxMap\TomTom_US_2016_Q4\Data

Documentation for the layers can be found in the documentation folder under 'spatial'

Database Processing



Database Processing

Database Connections Best Practices

Alteryx can access data that resides in a database and either bring that data into memory in Alteryx for processing or conduct the processing within the database itself via the in-database tool set. Here are a few tips to follow when connecting to databases.

A list of supported data sources can be found here:

https://help.alteryx.com/11.0/index.htm#DataSources/SupportedDataSources.htm%3FTocPath%3D_____4

Connecting to Databases

Saved Data Connections

NEW AND IMPROVED TIP FOR 11:
Use saved data connections from jason_m_mack:

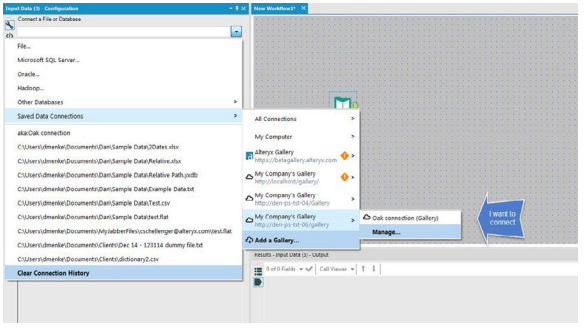
Make use of saved data connections ***(Options > Advanced Options > Manage Data Connections)*** if you need to share and develop workflows among a team. Managing these connections has been made easier with a new option to manage them through the gallery.

Save Data Connections Locally

Saved data connections are replacing the alias manager for Alteryx 11. They can be found under ***Options > Advanced Options > Manage Data Connections*** for regular connections and under ***Options > Advanced Options > Manage IN-DB Connections*** for in-database connections. They are useful if you have many data connections you would like to keep organized, if you find yourself switching between many databases frequently, or if you are required to update your password regularly (no more editing input tools - just edit the password once!). To add a new data connection, first use an input tool to verify that the connection can be established. Then use the data connection manager under options to save the connection string. For details on how to set up saved data connections, please visit the community at **https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Manage-Data-Connections-Alteryx-11-0/ta-p/45228**

Saved Data Connections on the Gallery – *NEW for 11*

New for 11 is a feature that will ease access to databases for your Alteryx users. The feature also allows the Alteryx Gallery and Database Administrators more governance over what connections are being made as well as who is making the connections. The Admin of the Gallery can create and manage their users' data connections. Simply create the connection, find your user(s), and share the connection. The user will then be able to see these "Gallery" connections on their desktop version of Alteryx and connect to the database with the permissions granted by the Admin.



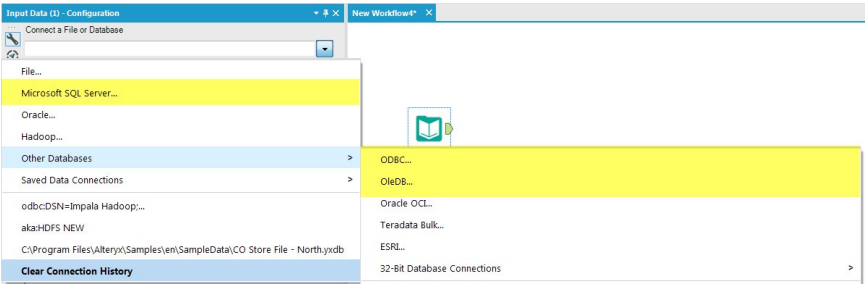
The user can see all connections shared with them in the new Manage Data Connection located in the Options > Advanced Options menu in their Alteryx Designer.

Full information can be found at: **https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Database-Connection-Share-Through-Gallery-Admin-Alteryx-11-0/ta-p/46409**

MS SQL Server

DSN-less connection to MS SQL Server – *NEW for 11*

Prior to 11, there were two options for connecting to SQL Server: OleDB and ODBC. In order to use ODBC to connect, a DSN would first need to be configured through the Windows ODBC Data Source Administrator. With Alteryx 11, we have introduced an option based on ODBC that doesn't require a DSN. This option can be found under Connect a File or Database > Microsoft SQL Server.



The familiar ODBC and OleDB options can still be found under Other Databases.

Allow saving password when using OLE DB

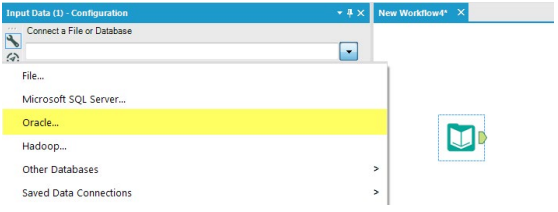
When setting up an OleDB connection, check the **Allow saving password** box in the **Connection** tab. Also this way the session will store the password and won't discard it once the test is successful. Also change the Persist Security info in the **All** tab to True.

Oracle

Connection Options for Oracle – ***New for 11***

For version 11, Alteryx has introduced an option to connect to Oracle without having to set up a tnsnames.ora file or installing a driver first.

The Oracle option in the input tool will search your computer for an Oracle driver, download the appropriate driver if it cannot find one, and set up the connection without the need to configure a tnsnames.ora file, or any Windows Environmental variables.



To use this connection, all you need from your Oracle DBA is the Oracle hostname, Service Name, Username, and Password.

Please see the community for more detail on this option: **https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Connecting-to-Oracle-Alteryx-11-0/ta-p/46654**

Other

FROM THE TIP MEISTERS:

Use an encrypted macro to protect credentials by aguisande

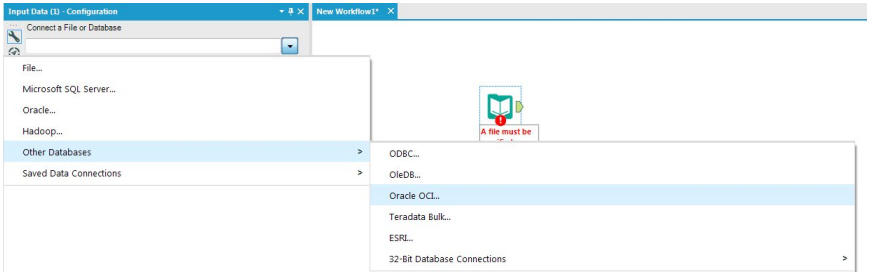
If you want to give users the option to read in certain data sets but you don't want to give them access to the dataset or have access to the credentials, set up an input tool that reads in the data inside an encrypted macro. To encrypt the macro, go to **Options > Advanced Options > Encrypt Workflow**

Use Native client

It is best to use the **Native Client Driver** provided by the database company. Make sure you are selecting the version that matches your database. Native Driver names would look like OraClient12c_home2 for Oracle and SQL Server Native Client 11 for MS SQL Server.

ODBC/OLEDB/Oracle OCI/32 bit connections have been moved

Certain connection types have been moved in the input tool drop down to make room for the new DSN-less MS SQL Server connection and the tnsnames-less Oracle connection. They can now be found under **Other Databases**.



Teradata Bulk Connection:

Increases speed when reading and loading large volumes of data to an empty table on a Teradata database. This option requires Teradata Tools and Utilities to be installed (preferably v14), at minimum: Shared ICU Libraries, ODBC Driver for Teradata, Teradata GSS Client, Teradata Parallel Transporter Base and Teradata Parallel Transporter Stream. Ideally, running Alteryx 64-bit (using 64-bit ODBC driver)

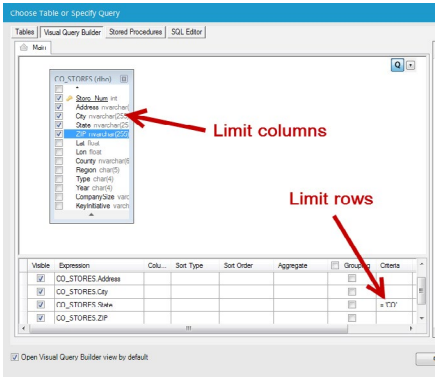
Drivers distributed by Alteryx

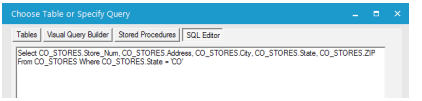
Alteryx has been authorized to download the following drivers by Simba: Cassandra/DataStax, Google BigQuery, Hive, Impala and Spark. To download them, please visit **http://pages.alteryx.com/Alteryx-Driver-Downloads-LP.html**

Workflow Efficiency

Limit data being brought into Alteryx

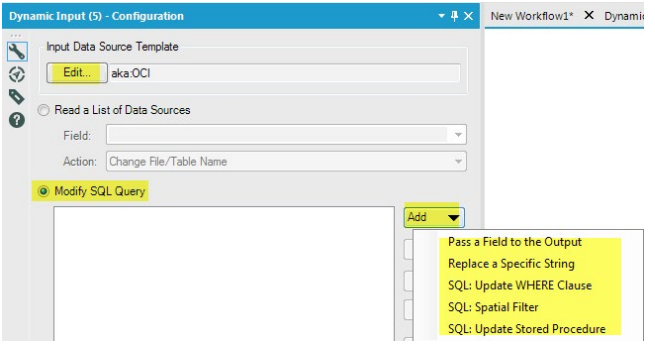
Use the Visual Query Builder and/or SQL Editor to limit the number of columns and rows being brought in.





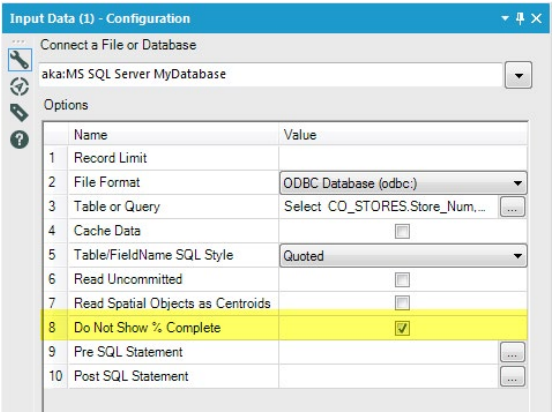
Dynamic Input tool

Use the dynamic input tool to dynamically update SQL queries, speeding up your processing time as it filters the data and only returns the user specified criteria.



Do not show % complete

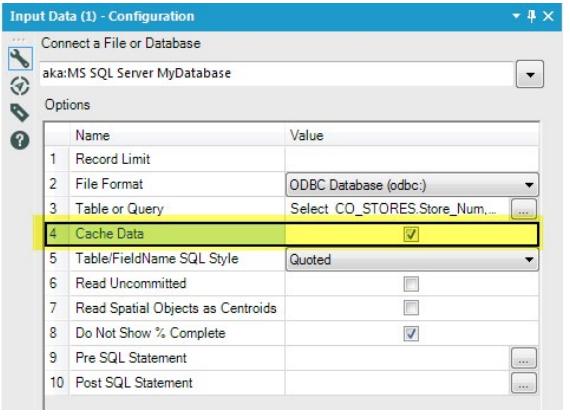
When checked, Alteryx will not try to report the status of reading in the file, thus speeding up the reading time.



Cache data during Workflow development

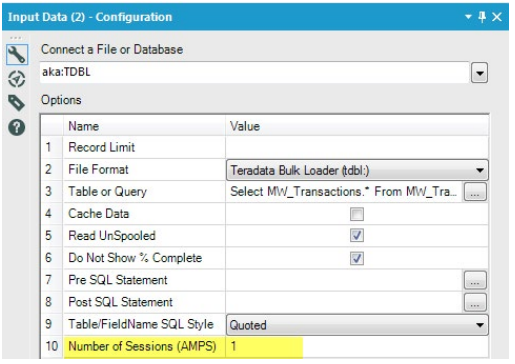
When cache data is checked, data is only read from the database the first time the workflow is run. Subsequent runs read from a locally stored .yxdb file which can be significantly faster than reading directly from the database. This setting is ignored in the scheduler, the gallery, or when running the workflow via command line.

Messages in the output window will indicate whether cached data or live data is used.



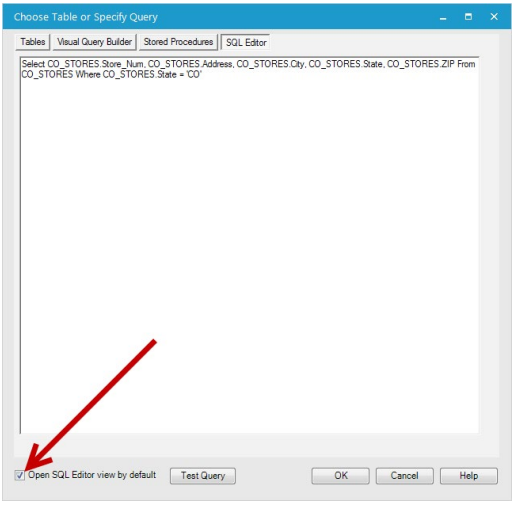
Teradata: specify AMPS

Teradata allows the user to specify the Number of Sessions (AMPS) to speed up processing.



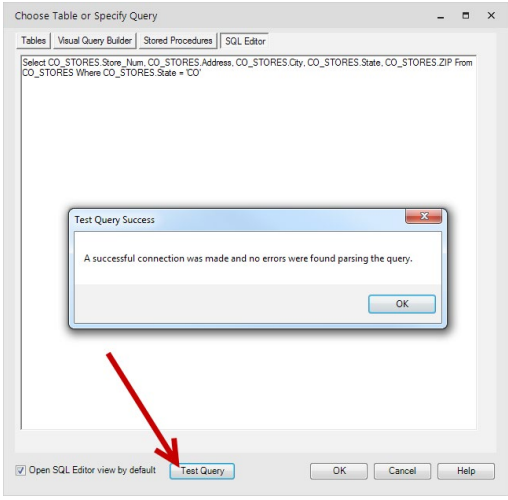
Select your default view

You can select the default view to be displayed in the Choose Table or Specify Query window as either the list of Tables, Visual Query Builder (VQB), Stored Procedure, or SQL Editor. If you have a lot of tables, using the SQL Editor as the default view can make the editor load much faster.



Test query

Once you have entered a query in the SQL Editor window, use the Test Query button to verify its syntax.



Writing Out

Commit as you go

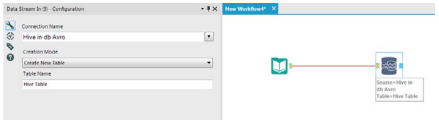
The transaction size option in the output tool determines how many records are committed to the table at once. Be default, the option is set to 10000 records. Increase or decrease the size to increase efficiency with your database.

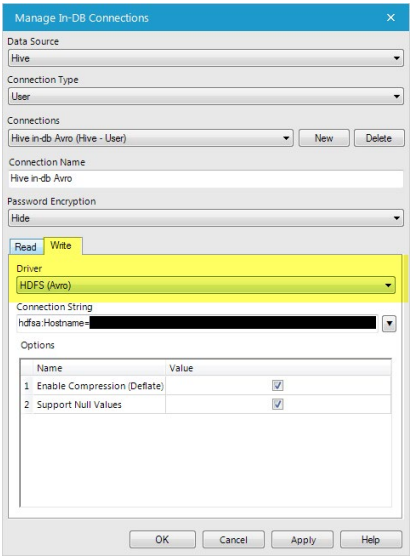
Block Until Done Tool

The block until done tool halts all downstream processing until upstream processing has been completed. If used right before an output tool, it will make sure that all processing finishes before starting to write out. If used right after an input tool, it will make sure all data is read in before processing starts. This can help with timeout connection problems to the database and it will enable you to read in data from one table, edit it, and then update the same table.

Faster Write to Hive

Hive ODBC can be slow when writing to tables. If you are looking to create a new table or overwrite an existing table, use the IN-DB tools with the write option set to HDFS(Avro) to improve speeds (NOTE: IN-DB does not support updates). You can use the Data Stream In tool instead of the regular output tool:





IN-DB

The IN-DB tools help users build complex queries to be executed on the database without needing to have a deep knowledge of the database query language. The query components are put together using tools with a look and feel similar to the regular tools used in Alteryx. Alteryx then compiles a query based on the tools on the canvas and sends it to the database to be executed there instead of on your local machine, thus taking advantage of the database server's processing power.

Find more information about the IN-DB tools in our product documentation: **https://help.alteryx.com/11.0/index.htm#In-DatabaseOverview.htm%3FTocPath%3DIn-Database%7C_____0**

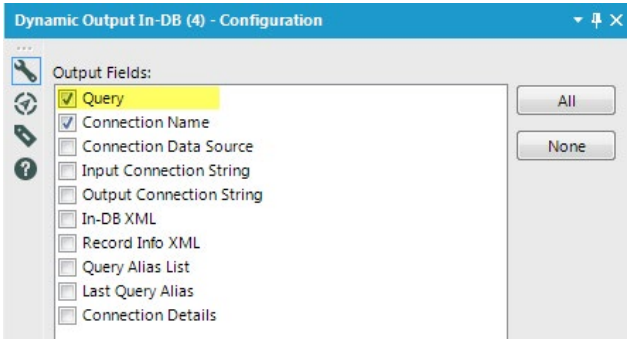
Supported Databases

For IN-DB we currently support the following databases:

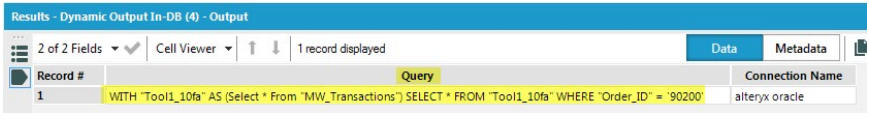
- Amazon Redshift
- Databricks ***New to 11***
- Hive
- IBM Netezza ***New to 11***
- Impala
- MS Analytics Platform System ***New to 11***
- MS Azure SQL Database ***New to 11***
- MS Azure SQL Data Warehouse
- MS SQL Server
- Oracle
- SAP Hana ***New to 11***
- Spark
- Teradata

Visualize the Query

Use the dynamic output tool to view the query Alteryx is building and to test it outside of the Alteryx environment or in the regular input tool.



Copy the query out of the results window:



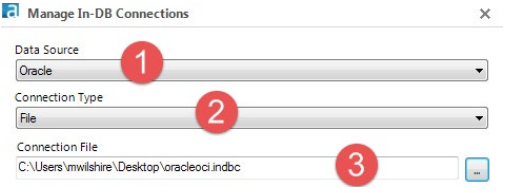
Do simple operations without knowledge of query language

While some SQL knowledge is required for more advanced operations (e.g. when creating conditional statements), the IN-DB tools don't need full SQL statements to function.

Share your IN-DB Connection with a connection file

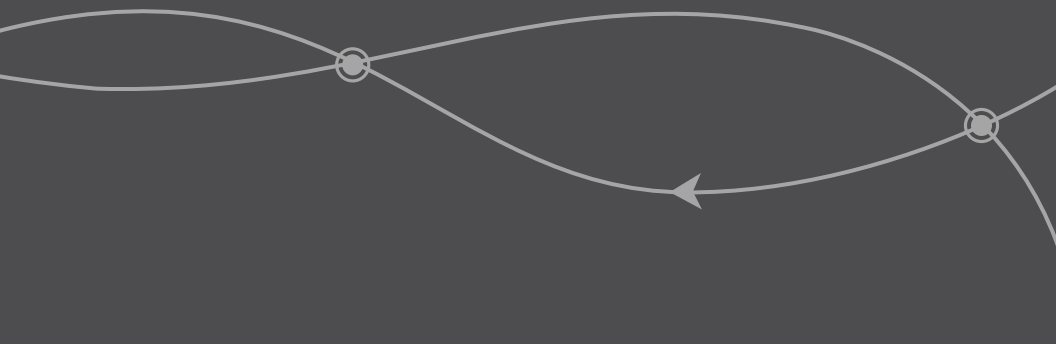
The In-DB Connection File type allows the sharing of database connections with other users. A database connection is saved as an .INDBC file so it can be packaged with a workflow. The password is encrypted in the INDBC file.

When creating the connection, select the Data Source from the dropdown ***(1)***, then select File for the connection type ***(2)***, navigate to a folder where the INDBC file will be stored and provide a name for this file ***(3)***.



For more details, check this Alteryx Community post at: **http://community.alteryx.com/t5/Alteryx-Knowledge-Base/Alteryx-In-DB-Connection-File/ta-p/17574**

Connectors



Connectors

Community Resources for Connectors

Did you know that in addition to Alteryx Help Documentation, there is a wealth of information for connectors at community.alteryx.com? Many Connectors have full knowledge base articles with step by step instructions.

Publish to Power BI

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/The-How-to-Guide-to-Power-BI/ta-p/18952

Adobe Analytics

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/The-How-to-Guide-to-Adobe-Analytics/ta-p/21304

Azure ML Text Analytics Tool

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/The-How-to-Guide-to-Azure-ML-Text-Analytics-Macro/ta-p/17246

Cognitive Services Text Analytics Macro

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/The-How-to-Guide-to-Cognitive-Services-Text-Analytics-Macro/ta-p/45175

Download Tool

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Tool-Mastery-Download/ta-p/29583

Google Analytics

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/The-How-to-Guide-to-Google-Analytics/ta-p/15137

Google Sheets

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/The-How-to-Guide-to-Google-Sheets/ta-p/20354

Salesforce

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/The-How-to-Guide-to-the-Salesforce-Connector/ta-p/18100

Tableau

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/The-How-to-Guide-to-Publishing-to-Tableau/tac-p/57951#M1704

Create Your Own Connector

Need a connector not included in Alteryx? Create your own! We've got a wealth of resources posted online to help you build one.

Start at the link below:

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Guide-to-Creating-Your-Own-Connector-Series/ta-p/23578

Then reference detailed information in step by step articles.

Guide to Creating Your Own Connector - Authentication

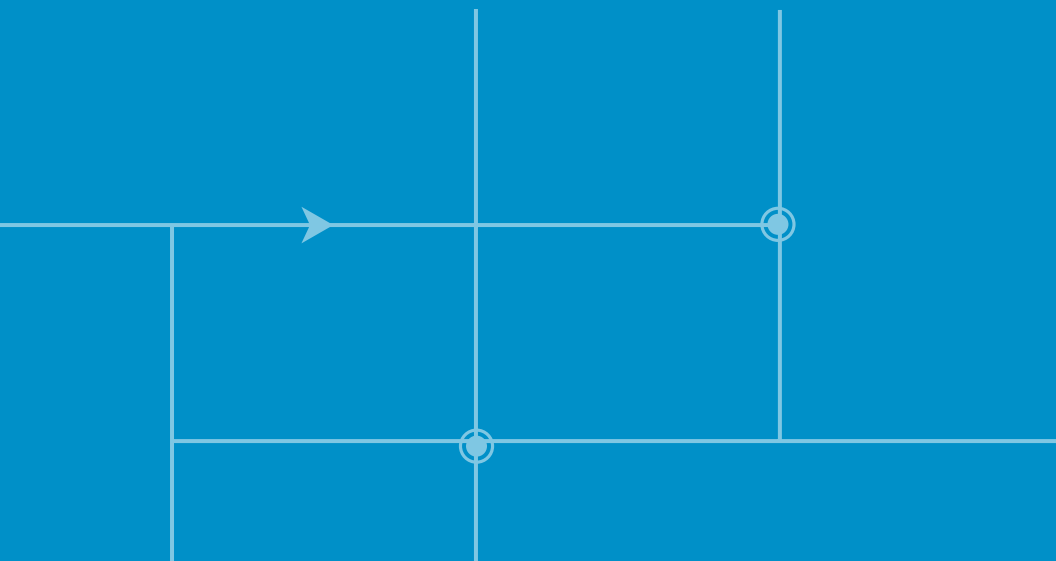
Guide to Creating Your Own Connector - Generating the Request

Guide to Creating Your Own Connector - Parsing API Response

Guide to Creating Your Own Connector - Handling Errors

Guide to Creating Your Own Connector - User Interface

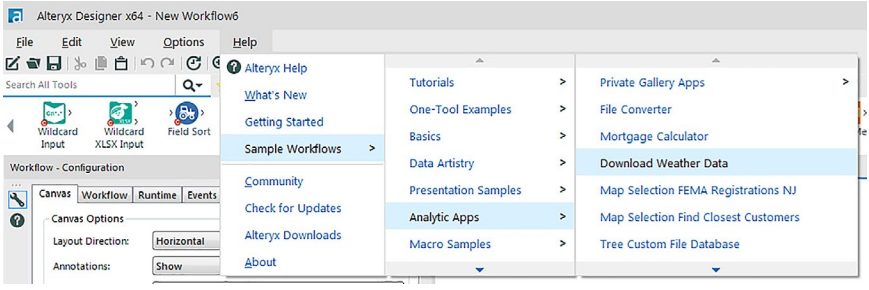
Analytic Apps and Macros



Analytic Apps and Macros

Analytic Apps Best Practices

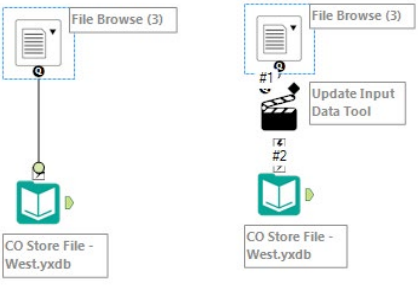
1. Analytic App and Macro building tutorials can be found under Help > Sample Workflows!



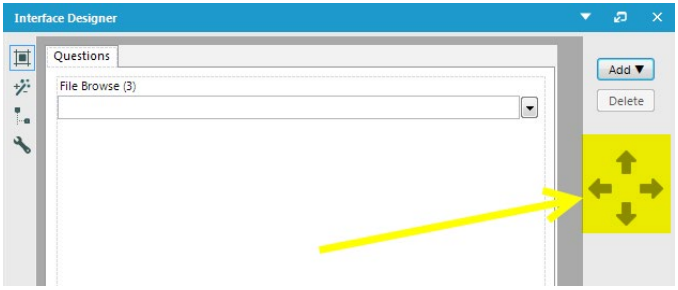
Interface Designer

2. Dragging any **Interface Tool** to the canvas automatically changes your Workflow Type to "Analytic App".

3. You can connect a **Question Tool** directly to another Tool which will create an **Action Tool** automatically.



4. You can move Analytic App questions around the UI using the Interface Designer.



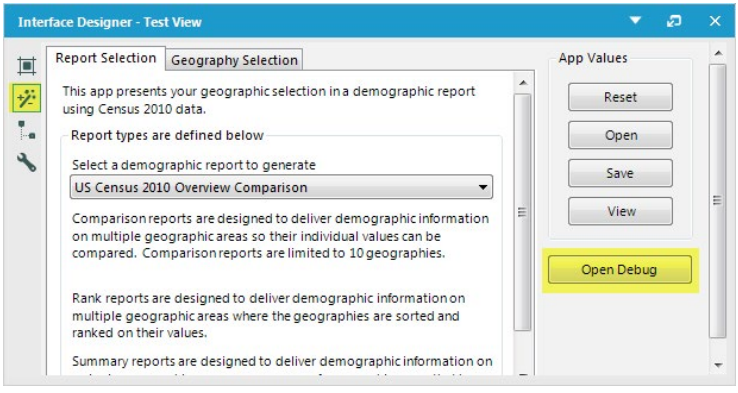
Connections

5. To make the app look less cluttered, it is recommended to use wireless connections for the action tools. To make your connections wireless, click on the connection and check the Wireless box, or right click on a tool and select Make Incoming/Outcoming connection wireless.

Apps and Macros Troubleshooting

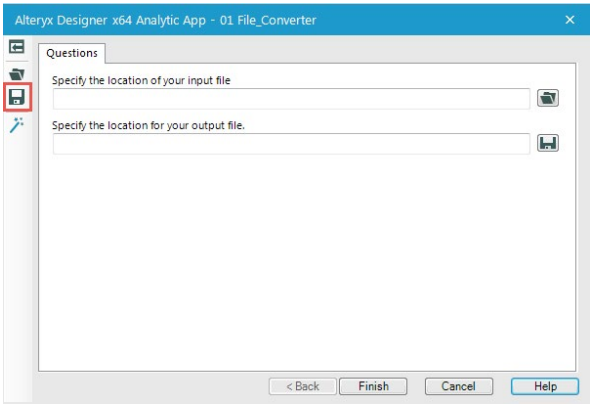
Debug

When designing an analytics application or macro, you can use Debug Mode to simulate how the app or macro would run with various selections in the Interface Designer



Keep Your Values

When you are developing an Analytic App, you can save the values you have been using for testing, then call those values back through the user interface. This is especially helpful if you are developing an app with several inputs.



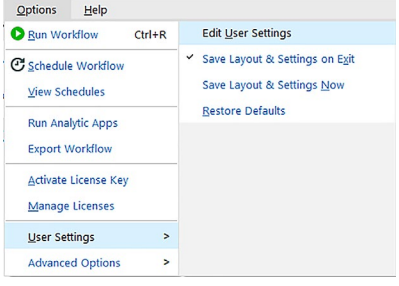
To save, click the **Save** icon on the left of your app UI then choose your specific file name (MyAppValues.yxwv).

To open, click the **Open File** icon, then browse to your App Values file.

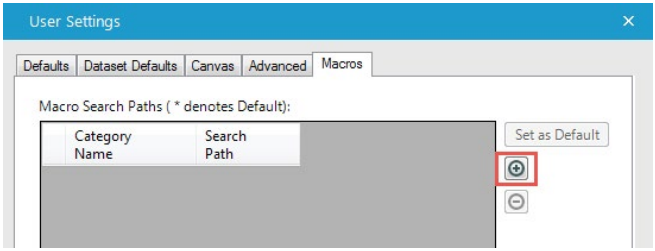
Manageable Macros

Custom macros are a great way to make Alteryx more efficient for your use cases, allowing for increased flexibility, customization, and shareability. To save yourself some time, try creating a custom Macro tool category within the Designer. To do so, follow the simple instructions below:

1. Create a macro (or many)!
2. Save your macro(s) in the same directory
3. In the Designer, go into Options – User Settings – Edit User Settings



4. Click on the Macros tab and click the plus sign:

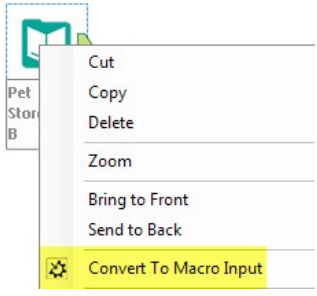


5. Enter a name for your custom category, and enter the path where you have your macro(s) stored:

6. Scroll to the end of your Tool Categories and you'll see your custom folder with any macros stored in that directory as Tool Icons you can now quickly drag and drop into your workflow.

Macro Input Shortcut

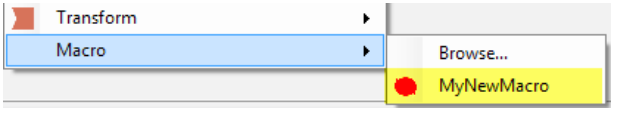
In many cases a macro is built upon an existing workflow that needs to be automated. When that happens, most certainly the Input Data or Text Input tool will have to be converted to a Macro Input for the macro to accept incoming connections. Often times, users will bring the Macro Input tool from the Interface category and browse to the data which can take a bit of time, the shortcut is to ***right click on the Input or Text Input tool and select Convert to Macro Input***



Macro Building

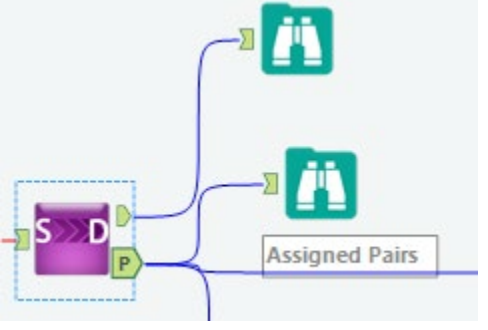
Easy Macro Insert! *NEW to 11*

A macro can now be easily added to a workflow as soon as it is built and saved by right-clicking in a workflow's canvas and inserting the new macro.

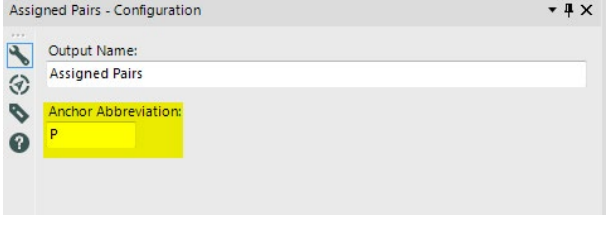


Give a Letter to your anchor: Macro Connection Abbreviation

You can name the connectors for macros to make them more intuitive to the user. In this example, the Iterative Supply and Demand Macro has a connector named "P" to indicate the output that will produce the assigned pairs. The other output should be empty and can be ignored.

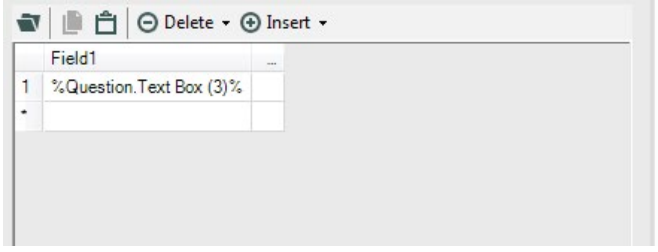


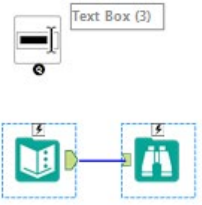
To create or change the Connector Abbreviation, go to the Configuration tab for the Macro Input and Output tools

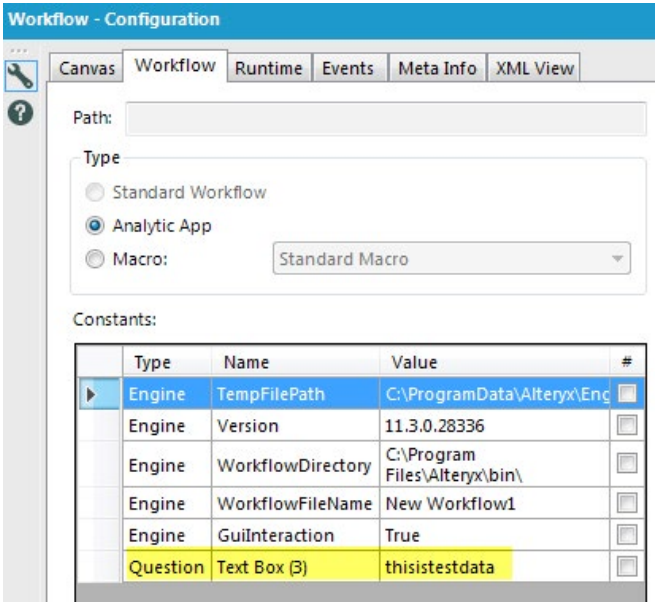


FROM THE TIP MEISTERS Easier App/Macro Debugging by Patrick_Digan

When working with interface tools (drop down, list box, textbox etc.), you can use the %Question.**UniqueToolName**% syntax to call the user input in any tool. During debugging this allows you to run an app like a normal workflow by giving it test data under the workflow tab of the designer configuration window, as well as cleaner look due to no action tools.







Server and Gallery

Server and Gallery

Workflow and Macro Sharing

You can publish and share your Workflows and Macros with other Alteryx Gallery users. Like Alteryx Apps, Workflows can also be run in the Gallery. Macros can only be downloaded and added to your own Workflows and Apps.

Workflows and Macros are uploaded the same way Alteryx Apps are. Simply open the Workflow in the Alteryx Desktop Designer and click File -> Save As. Select the Gallery you wish to save them to. If you need to make changes to what will be included with your Workflow or Macro, like including sample data, click the Manage workflow assets link to make changes. When you are ready, click the Save button. Once the Workflow or Macro has been published, you can find it in your Private Studio.

Custom Workflow and District Tagging

With a Private Gallery comes the ability to add custom tags to Workflows, Analytic Apps, and Macros. Your Gallery Curator can set up Tags for users to add to their published processes to help when searching the Gallery, or to add to Districts within the Gallery.

To set up a Tag, the Curator of your Gallery must log in and go into the Admin section of the Gallery. From there, click on the Workflows option on the left, and at the bottom you'll see the Tags area. Admins can create custom tags for users to add, and can also include the option for certain tags to be only usable by Curators, by selecting the "Admin Only" option.

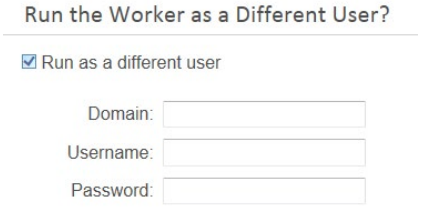
Once created, any Artisan who uploads a Workflow, App, or Macro to the Gallery can go into their Private Studio, select a workflow, and click on the Workflow Properties link. Here you'll be able to select from the list of tags available within your Gallery.

To add a tag to a District, the Curator for your Gallery must first create a District, and then in the setup for that District, can select tags to apply. Once the tags are applied to the District, any Workflow that is added to your company's public gallery with the tags associated with that District will be available within the District itself.

Run As

The Alteryx Service runs as a local system account, by default. This can lead to issues accessing data stored on network drives or databases that require specific user permissions. In order to get around this, go to System Settings during your Server configuration. On the Worker - Run As tab you can enter credentials for the Service to use when running scheduled and/or Gallery jobs. You'll need to enter the Domain, Username, and Password:

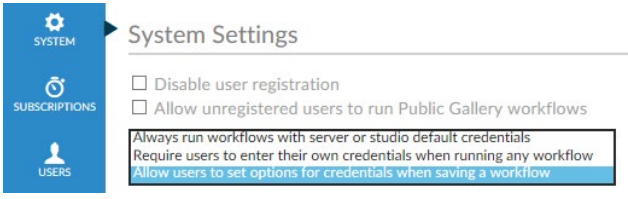
Note that only one user account can be specified here and it applies to all jobs run on the server either through the Scheduler or the Gallery. If you have multi-node deployment with multiple workers, each Worker machine will need this setting entered in order to ensure all workflows can run regardless of which Worker they are sent to.



Workflow Execution Permissions

Users have the ability to pre-set credentials or require a user enter their credentials at run time when uploading a workflow or an Analytic App to the Gallery.

To enable this functionality, the Gallery Curator must log in and go into the Admin section of the Gallery. From there, click on the System option on the left. You'll see the option for "Default behavior for workflow credentials".

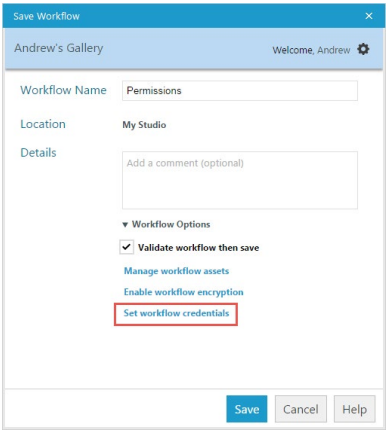


You can choose from:

1. Always run workflows with server or studio default credentials
2. Require users to enter their own credentails when running any workflow
3. Allow users to set options for credentials when saving a workflow

If option 3 is selected, when a user is saving a workflow or app to the Gallery, an additional option will be available under “workflow options” in the saving dialog box:

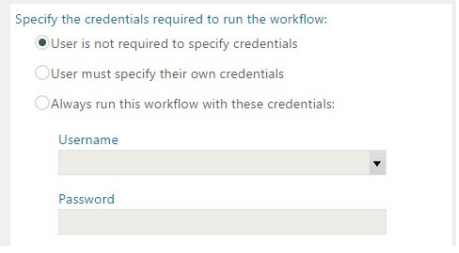
Clicking this link will take the user to the options to specify any credential requirements for their workflow:



User is not required to specify credentials: This option will set the workflow to run as the default credentials for the studio or server.

User must specify their own credentials: Users will be prompted to enter their credentials when they run the workflow

Always run this workflow with these credentials: The workflow will always run using the credentials specified.



Schedule from the Gallery: *NEW to 11!*

Scheduling in the Gallery is now available! A few clicks and your published workflow will be running when you want it to.

After a Gallery Curator (Admin) has enabled the ability to schedule processes from the Gallery, users have the option to schedule from gallery.

Once enabled, users will see an additional option when they select a workflow:

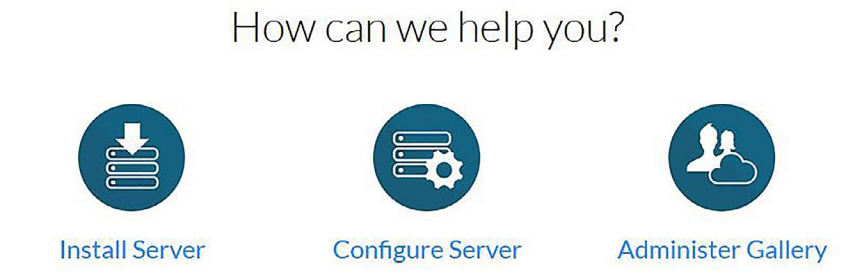
To view the results of the Schedules, click over to the Workflow Results page. Users will be able to see only the results from their schedules and ad-hoc runs, with a designation as to which runs were Manual and which were Scheduled. Gallery Curators (Admin) can see run results for all users.

Gallery Admin Help Page: *NEW to 11!*

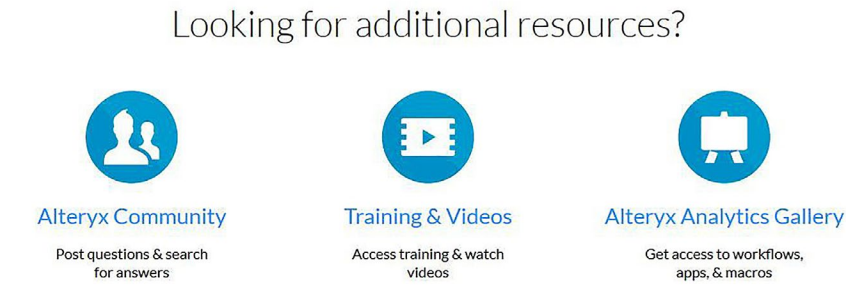
Now, find all your Gallery questions and answers in one place! The new Gallery Admin Help Page has your Server Installation Guide, Configuration instructions, and the much-requested Administer Gallery management features - Subscriptions and Studios defined! Manage your user permissions! Edit user accounts!

Log into your Gallery, find your settings, and click on Admin (this will only appear if you are your Gallery's admin). Then, in the bottom left-hand corner, find the Help link.

Need to create a user? Change their profile? Move the user to another Studio? All this and more under Administer Gallery. Questions about installing your Server? Backing up your MongoDB? Check out the Install and Configure Server sections.



Still craving more information? Perhaps some training options? Quick Community access?



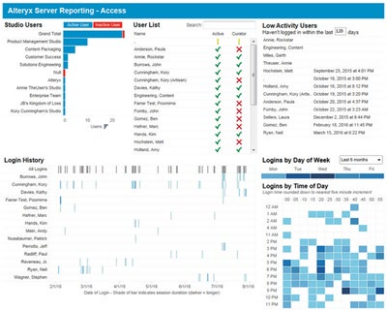
Alteryx Server Usage Report: Monitoring and Reporting on Alteryx Across the Organization: *NEW to 11!*

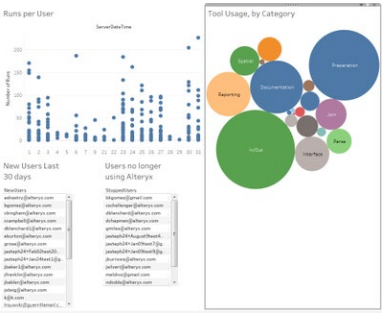
With many users from different parts of the organization accessing those analytics from a centralized Alteryx Server, the ability to report on and understand Server usage was essential – so we released the Alteryx Server Usage Report. This report enabled administrators to understand how users are logging into the Server, what workflows they're running, and more.

Now, with Alteryx Analytics 11, we've expanded on these capabilities by enabling administrators to understand not only how the Server is being utilized, but **how users of Alteryx Designer are leveraging their own desktop installations**. Administrators can now access usage insights such as:

- Which Alteryx Designer users are most active in the organization
- What are the most popular tools and categories being used
- What types of data sources are being accessed

The new Alteryx Designer Usage data is available for customers with Alteryx Server with the Gallery component enabled. By default, this feature is disabled, and the Alteryx Designers will need to be configured to begin sending data to your Alteryx Server. Please read the **documentation available here** for instructions on how to configure Alteryx Designers to send data to your Alteryx Server.





Tool Overview

Tool Overview

In/Out			
Browse	Review your data at any point in the work flow.	Date Time Now	Input the current date and time at module runtime, in a format of the user's choosing. (Useful for adding a date-time header to a report.)
Directory	Input a list of file names and attributes from a specified directory.	Input	Bring data into your module by selecting a file or connecting to a database (optionally, using a query).
Map Input	Manually draw or select map objects (points, lines, and polygons) to be stored in the module.	Output	Output the contents of a data stream to a file or database.
Text Input	Manually add data which will be stored in the module.	XDF Input	This tool enables access to an XDF format file (the format used by Revolution R.
XDF Output	This tool reads an Alteryx data stream into an XDF format file, the file format used by Revolution R.		
Preparation			
Auto Field	Automatically set the field type for each string field to the smallest possible size and type that will accommodate the data in each column.	Create Samples	Split the data stream into two or three random samples with a specified percentage of records in the estimation and validation samples.
Data Cleansing	Automatically performs common data cleansing with a simple check of a box.	Date Filter	Easily filter data based on a date criteria using a calendar based interface.
Filter	Query records based on an expression to split data into two streams, True (records that satisfy the expression) and False (those that do not).	Formula	Create or update fields using one or more expressions to perform a broad variety of calculations and/or operations.

Generate Rows	Create new rows of data. Useful for creating a sequence of numbers, transactions, or dates.	Impute Values	Update specific values in a numeric data field with another selected value. Useful for replacing NULL() values.
Multi-Field Binning	Group multiple numeric fields into tiles or bins, especially for use in predictive analysis.	Multi-Field Formula	Create or update multiple fields using a single expression to perform a broad variety of calculations and/or operations.
Multi-Row Formula	Create or update a single field using an expression that can reference fields in subsequent and/or prior rows to perform a broad variety of calculations and/or operations. Useful for parsing complex data and creating running totals.	Oversample Field	Sample incoming data so that there is equal representation of data values to enable effective use in a predictive model.
Random % Sample	Generate a random number or percentage of records passing through the data stream.	Record ID	Assign a unique identifier to each record.
Sample	Limit the data stream to a number, percentage, or random set of records.	Select	Select, deselect, reorder and rename fields, change field type or size, and assign a description.
Select Record	Select specific records and/or ranges of records including discontinuous ranges. Useful for troubleshooting and sampling.	Sort	Sort records based on the values in one or more fields.
Tile	Group data into sets (tiles) based on value ranges in a field.	Unique	Separate data into two streams, duplicate and unique records, based on the fields of the user's choosing.
Join			
Append Field	Append the fields from a source input to every record of a target input. Each record of the target input will be duplicated for every record in the source input.	Dun & Bradstreet Business File Matching	Match your customer or prospect file to the Dun & Bradstreet business file.

Consumer View Matching	An updated version of the Household File Matching Tool with functionality and new matching criteria	Find Replace	Search for data in one field from one data stream and replace it with a specified field from a different stream. Similar to an Excel VLOOKUP.
Fuzzy Match	Identify non-identical duplicates in a data stream.	Join	Combine two inputs based on a common field or record position. In the joined output, each row will contain the data from both inputs.
Join Multiple	Combine two or more inputs based on a common field or record position. In the joined output, each row will contain the data from each input	Make Group	Assemble pairs of matches into groups based on their relationships. Generally used with the Fuzzy Match tool.
Union	Combine two or more data streams with similar structures based on field names or positions. In the output, each column will contain the data from each input.		
Parse			
Date Time	Transform date/time data to and from a variety of formats, including both expression-friendly and human readable formats.	RegEx	Parse, match, or replace data using regular expression syntax.
Text to Columns	Split the text from one field into separate rows or columns.	XML Parse	Read in XML snippets and parse them into individual fields.
Transform			
Arrange	Manually transpose and rearrange fields for presentation purposes.	Count Records	Count the records passing through the data stream. A count of zero is returned if no records pass through.
Cross Tab	Pivot the orientation of the data stream so that vertical fields are on the horizontal axis, summarized where specified.	Running Total	Calculate a cumulative sum per record in a data stream.

Summarize	Summarize data by grouping, summing, counting, spatial processing, string concatenation, and much more. The output contains only the results of the calculation(s).	Transpose	Pivot the orientation of the data stream so that horizontal fields are on the vertical axis.
Weighted Average	Calculate the weighted average of a set of values where some records are configured to contribute more than others.		
In-Database Tools			
Browse Data In-DB	Review your data at any point in an In-DB workflow. Note: Each In-DB Browse triggers a database query and can impact performance.	Connect In-DB	Establish a database connection for an In-DB workflow
Data Stream In	Bring data from a standard workflow into an In-DB workflow.	Data Stream Out	Stream data from an In-DB workflow to a standard workflow, with an option to sort the records.
Dynamic Input In-DB	Take In-DB Connection Name and Query fields from a standard data stream and input them into an In-DB data stream.	Dynamic Output In-DB	Output information about the In-DB workflow to a standard workflow for Predictive In-DB.
Filter In-DB	Filter In-DB records with a Basic filter or with a Custom expression using the database's native language (e.g., SQL).	Formula In-DB	Create or update fields in an In-DB data stream with an expression using the database's native language (e.g., SQL).
Join In-DB	Combine two In-DB data streams based on common fields by performing an inner or outer join.	Macro Input In-DB	Create an In-DB input connection on a macro and populate it with placeholder values.

Macro Output In-DB	Create an In-DB output connection on a macro.	Sample In-DB	Limit the In-DB data stream to a number or percentage of records.
Select In-DB	Select, deselect, reorder, and rename fields in an In-DB workflow.	Summarize In-DB	Summarize In-DB data by grouping, summing, counting, counting distinct fields, and more. The output contains only the result of the calculation(s).
Union In-DB	Combine two or more In-DB data streams with similar structures based on field names or positions. In the output, each column will contain the data from each input.	Write In-DB	Use an In-DB data stream to create or update a table directly in the database.
Reporting			
Charting	Create a chart (Area, Column, Bar, Line, Pie, etc.) for output via the Render tool.	Email	Send emails for each record with attachments or e-mail generated reports if desired.
Image	Add an image for output via the Render tool.	Layout	Arrange two or more reporting snippets horizontally or vertically for output via the Render tool.
Map Legend Builder	Recombine the component parts of a map legend (created using the Map Legend Splitter) into a single legend table, after customization by other tools.	Map Legend Splitter	Split the legend from the Report Map tool into its component parts for customization by other tools. (Generally recombined by the Map Legend Builder.)
Overlay	Arrange reporting snippets on top of one another for output via the Render tool.	Render	Output report snippets into presentation-quality reports in a variety of formats, including PDF, HTML, XLSX and DOCX.
Report Footer	Add a footer to a report for output via the Render tool.	Report Header	Add a header to a report for output via the Render tool.

Report Map	Create a map for output via the Render tool.	Report Text	Add and customize text for output via the Render tool.
Table	Create a data table for output via the Render tool.		
Documentation			
Comment	Add annotation or images to the module canvas to capture notes or explain processes for later reference.	Explorer Box	Add a web page or Windows Explorer window to your canvas.
Tool Container	Organize tools into a single box which can be collapsed or disabled.		
Spatial			
Buffer	Expand or contract the extents of a spatial object (typically a polygon).	Create Points	Create spatial points in the data stream using numeric coordinate fields.
Distance	Calculate the distance or drive time between a point and another point, line, or polygon.	Find Nearest	Identify the closest points or polygons in one file to the points in a second file.
Generalize	Simplify a polygon or polyline object by decreasing the number of nodes.	Heat Map	Generate polygons representing different levels of “heat” (e.g. demand) in a given area, based on individual records (e.g. customers)
Make Grid	Create a grid within spatial objects in the data stream.	Non Overlap Drivetime	Create drive time trade areas that do not overlap for a point file.
Poly-Build	Create a polygon or polyline from sets of points.	Poly-Split	Split a polygon or polyline into its component polygons, lines, or points.

Smooth	Round off sharp angles of a polygon or polyline by adding nodes along its lines.	Spatial Info	Extract information about a spatial object, such as area, centroid, bounding rectangle, etc.
Spatial Match	Combine two data streams based on the relationship between two sets of spatial objects to determine if the objects intersect, contain or touch one another.	Spatial Process	Create a new spatial object from the combination or intersection of two spatial objects.
Trade Area	Define radii (including non-overlapping) or drive-time polygons around specified points.		
Interface			
Action	Updates the configuration of a module with values provided by interface questions, when run as an app or macro.	Check Box	Display a check box option to the end user in an app or macro.
Condition	Tests for the presence of user selections. The state is either true or false.	Control Parameter	Control Parameter tool is the input for each iteration in the Batch Macro.
Date	Allows users to select a date.	Drop Down	Allows users to make a single selection from a drop down list.
Error Message	Display an error message and halt processing.	File Browse	Allow users to select a file to use as an input or output via a traditional file browse window.
Folder Browse	Allow users to browse to a folder via a traditional file browse window.	List Box	Allow users to make multiple selections from a list box.
Macro Input	Create an input connection on a macro.	Macro Output	Create an output connection on a macro.

Map	Display an interactive map to allow the user to draw or select location objects	Numeric Up/ Down	Allow users to choose a number from a predefined range.
Radio Button	Allow users to select an option from a mutually exclusive list when used with other radio button tools.	Text Box	Allow users to enter characters in a free form text box.
Tree	Allow users to make one or more selections from an organized, hierarchical data structure.		
Data Investigation			
Association Analysis	Determine which fields in a database have a bivariate association with one another.	Basic Data Profile	Outputs basic metadata such as data type, min, max, average, number of missing values, etc.
Contingency Table	Create a contingency table based on selected fields, to list all combinations of the field values with frequency and percent columns.	Distributed Analysis	Allows you to fit one or more distributions to the input data and compare them based on a number of Goodness-of-Fit statistics.
Field Summary	Produce a concise summary report of descriptive statistics for the selected data fields.	Frequency Table	Produce a frequency analysis for selected fields - output includes a summary of the selected field(s) with frequency counts and percentages for each value in a field.
Heat Plot	This tools plots the empirical bivariate density of two numeric fields using colors to indicate variations in the density of the data for different levels of the two fields	Histogram	Provides a histogram plot for a numeric field. Optionally, it provides a smoothed empirical density plot. Frequencies are displayed when a density plot is not selected, and probabilities when this option is selected.
Pearson Correlation	Correlation (often measured as a correlation coefficient, p), indicates the strength and direction of a linear relationship between two or more random variables.	Plot of Means	Take a numeric or binary categorical (converted into a set of zero and one values) field as a response field along with a categorical field and plot the mean of the response field for each of the categories (levels) of the categorical field.

Scatterplot	Produce enhanced scatterplots, with options to include boxplots in the margins, a linear regression line, a smooth curve via non-parametric regression, a smoothed conditional spread, outlier identification, and a regression line.	Spearman Correlation	Assesses how well an arbitrary monotonic function could describe the relationship between two variables without making any other assumptions about the particular nature of the relationship between the variables.
Violin Plot	Shows the distribution of a single numeric variable, and conveys the density of the distribution based on a kernel smoother that indicates the density of values (via width) of the numeric field.		
Predictive			
Boosted Model	Create generalized boosted regression models based on the gradient boosting methods of Friedman.* It works by serially adding simple decision tree models to a model ensemble so as to minimize an appropriate loss function.	Count Regression	Estimate regression models for count data (e.g., the number of store visits a customer makes in a year), using Poisson regression, quasi-Poisson regression, or negative binomial regression.
Decision Tree	Predict a target variable using one or more predictor variables that are expected to have an influence on the target variable by constructing a set of if-then split rules that optimize a criteria.	Forest Model	Predict a target variable using one or more predictor variables that are expected to have an influence on the target variable, by constructing and combining a set of decision tree models (an "ensemble" of decision tree models).
Gamma Regression	Relate a Gamma distributed, strictly positive variable of interest (target variable) to one or more variables (predictor variables) that are expected to have an influence on the target variable.	Lift Chart	Compare the improvement (or lift) that various models provide to each other as well as a 'random guess' to help determine which model is 'best.' Produce a cumulative captured response chart (also called a gains chart) or an incremental response rate chart.
Linear Regression	Relate a variable of interest (target variable) to one or more variables (predictor variables) that are expected to have an influence on the target variable. (Also known as a linear model or a least-squares regression.)	Logistic Regression	Relate a binary (yes/no) variable of interest (target variable) to one or more variables (predictor variables) that are expected to have an influence on the target variable.

Naive Bayes	Creates a binomial or multinomial probabilistic classification model of the relationship between a set of predictor variables and a categorical target variable.	Nested Test	Examine whether two models, one of which contains a subset of the variables contained in the other, are statistically equivalent in terms of their predictive capability.
Network Analysis	Creates an interactive visualization of a network along with summary statistics and distribution of node centrality measures.	Neural Network	Create feedforward perceptron neural network model with a single hidden layer.
Score	Calculate a predicted value for the target variable in the model.	Spline Model	Predict a variable of interest (target variable) based on one or more predictor variables using the two-step approach of Friedman's multivariate adaptive regression (MARS) algorithm.
Stepwise	Determine the "best" predictor variables to include in a model out of a larger set of potential predictor variables for linear, logistic, and other traditional regression models.	Support Vector Machine	Support Vector Machines (SVM), or Support Vector Networks (SVN), are popular supervised learning algorithms used for classification problems, and are meant to accommodate instances where the data (i.e., observations) are considered linearly non-separable.
Test of Means	Compare the difference in the mean values for a numeric response field between a control group and one or more treatment groups		
AB Testing			
AB Analysis	Compare the percentage change in a performance measure to the same measure one year prior.	AB Controls	Match one to ten control units (e.g., stores, customers, etc.) to each member of a set of previously selected test units on the criteria such as seasonal patterns and growth trends for a key performance indicator, along with other user provided criteria.

AB Treatments	Determine which group is the best fit for AB testing.	AB Trend	Create measures of trend and seasonal patterns that can be used in helping to match treatment to control units (e.g., stores or customers) for A/B testing. The trend measure is based on period to period percentage changes in the rolling average (taken over a one year period) in a performance measure of interest. The same measure is used to assess seasonal effects. In particular, the percentage of the total level of the measure in each reporting period is used to assess seasonal patterns.
Time Series			
TS ARIMA	Estimate a univariate time series forecasting model using an autoregressive integrated moving average (or ARIMA) method.	TS ETS	Estimate a univariate time series forecasting model using an exponential smoothing method.
TS Compare	Compare one or more univariate time series models created with either the ETS or ARIMA tools.	TS Covariant Forecast	Provide forecasts from an ARIMA model that uses covariates. The number of periods to forecast is determined by the number of periods of covariate data provided.
TS Filler	This tool allows a user to take a data stream of time series data and "fill in" any gaps in the series	TS Forecast	Provide forecasts from either an ARIMA or ETS model for a specific number of future periods.
TS Plot	Create a number of different univariate time series plots, to aid in the understanding the time series data and determine how to develop a forecasting model.		
Predictive Grouping			
Append Cluster	Appends the cluster assignments from a K-Centroids Cluster Analysis tool to a data stream containing the set of fields (with the same names, but not necessarily the same values) used to create the original cluster solution.	Find Nearest Neighbor	Find the selected number of nearest neighbors in the "data" stream that corresponds to each record in the "query" stream based on their Euclidean distance.

K-Centroids Analysis	Partition records into "K groups" around centroids by assigning cluster memberships, using K-Means, K-Medians, or Neural Gas clustering.	K-Centroids Diagnostics	Assess the appropriate number of clusters to specify, given the data and the selected Predictive Grouping algorithm (K-Means, K-Medians, or Neural Gas).
Market Basket Affinity	Used to construct a matrix of affinity measures between different items with respect to their likelihood off being part of the same action or transaction.	Market Basket Inspect	Step 2 of a Market Basket Analysis: Take the output of the MB Rules tool, and provide a listing and analysis of those rules that can be filtered on several criteria in order to reduce the number or returned rules or item sets to a manageable number.
Market Basket Rules	Step 1 of a Market Basket Analysis: Take transaction oriented data and create either a set of association rules or frequent item sets. A summary report of both the transaction data and the rules/item sets is produced, along with a model object that can be further investigated in an MB Inspect tool.	Principal Components	Reduce the dimensions (number of numeric fields) in a database by transforming the original set of fields into a smaller set that accounts for most of the variance (i.e., information) in the data. The new fields are called factors, or principal components.
Prescriptive			
Optimization	Solve linear programming (LP), mixed integer linear programming (MILP), and quadratic programming (QP) optimization problems using matrix, manual, and file input modes.	Simulation Sampling	Samples data parametrically from a distribution, from input data, or as a combination best fitting to a distribution. Data can also be "drawn" if you are unsure of the parameters of a distribution and lacking data.
Simulation Scoring	samples from an approximation of a model object error distribution. Whereas standard scoring attempts to predict the mean predicted value, Simulation Scoring also considers the error distribution to provide a range of possible values.	Simulation Summary	Visualizes simulated distributions and results from operations on those distributions. It also provides visual and quantitative analyses of input versus output variables.
Connectors			
Amazon S3 Download	Read CSV, DBF and YXDB files from Amazon S3.	Amazon S3 Upload	Write CSV, DBF and YXDB files to Amazon S3.

Download	Retrieve data from a specified URL, including an FTP site, for use in a data stream.	Foursquare Search	Search Foursquare Venues by location with an option to filter by a search term.
Google Analytics	Bring in data from Google Analytics	Marketo Append	Retrieves Lead and Activity records from Marketo and appends them to an incoming datastream
Marketo Input	Read Lead and Change Marketo records for a specified date range	Marketo Output	Writes data to Marketo using an upsert function.
MongoDB Input	Read and query data from a MongoDB database. MongoDB is a scalable, high-performance, open source NoSQL database.	MongoDB Output	Write data to a MongoDB database. MongoDB is a scalable, high-performance, open source NoSQL database.
Salesforce Input	Read and query data from Salesforce.com.	Salesforce Output	Write data to Salesforce.com.
SharePoint List Input	Read a list from SharePoint.	SharePoint List Output	Write data to a list in SharePoint.
Address			
Canada Geocoder	Determine the coordinates (Latitude and Longitude) of an address and attach a corresponding spatial object to your data stream. Uses multiple tools to produce the most accurate answer.	CASS	Standardize address data to conform to the U.S. Postal Service CASS (Coding Accuracy Support System) or Canadian SOA (Statement of Accuracy).

Parse Address	Parse a single address field into different fields for each component part such as: number, street, city, ZIP. Consider using the CASS tool for better accuracy.	Reverse Geocoder	Coordinates latitude and longitude locations by querying and downloading data from the TomTom Reverse Geocoder API. Produces a record-for-record reverse geocode result which includes formatted address fields and latitude/longitude coordinates. In addition, a summary output is produced that provides a count of records that were successfully and unsuccessfully reverse geocoded.
Street Geocoder	Determine the coordinates (Latitude and Longitude) of an address and attach a corresponding spatial object to your data stream. Consider using the U.S. Geocoder or Canadian Geocoder macros for better accuracy.	US Geocoder	Determine the coordinates (Latitude and Longitude) of an address and attach a corresponding spatial object to your data stream. Uses multiple tools to produce the most accurate answer.
US ZIP9 Coder	Determine the coordinates (Latitude and Longitude) of a 5, 7, or 9 digit ZIP code.		
Demographic Analysis			
Allocate Append	Append demographic variables to your data stream from the installed dataset(s).	Allocate Input	Input geographies and demographics into a data stream from the installed dataset(s).
Allocate Metainfo	Input demographic descriptions and unabbreviated variable names (“popcy” is displayed as “population current year”) from the installed dataset(s).	Allocate Report	Create pre-formatted reports associated with Allocate data from the installed dataset(s).
Behavior Analysis			
Behavior Metainfo	Input behavior cluster names, IDs and other meta info from an installed dataset.	Cluster Code	Append a behavior cluster code to each record in the incoming stream.

Compare Behavior	Compare two behavior profile sets to output a variety of measures such as market potential index, penetration, etc.	Create Profile	Create behavior profiles from cluster information in an incoming data stream.
Detail Fields	Split a behavior profile set into its individual clusters and details.	Profile Input	Input a behavior profile set from an installed dataset or external file.
Profile Output	Output a profile set (*.scd file) from behavior profile sets in an incoming data stream. Generally only used when using the standalone Solocast desktop tool.	Report: Rank	Generate a rank report from a set of behavior profiles for output via the Render tool.
Report: Comparison	Generate a comparison report from two behavior profile sets for output via the Render tool.	Report: Detail	Generate a detailed report from a behavior profile set for output via the Render tool.
Calgary			
Calgary Input	Input data from the Calgary database file with a query	Calgary Join	Query a Calgary database dynamically based on values from an incoming data stream.
Calgary Loader	Create a highly indexed and compressed Calgary database which allows for extremely fast queries.	Calgary Cross Count	Find the counts of predefined sets of values that occur in a Calgary database file.
Calgary Cross Count Append	Find the counts of sets of values (from the incoming data stream) that occur in a Calgary database file.		
Developer			
API Output	Return the results of a data stream directly to an API callback function. For use with custom application development.	Base64 Encoder	The Base 64 Encoder macro issues a base 64 encode string

BlobConvert	The Blob Convert tool will take different data types and either converts them to a Binary Large Object (Blob) or takes a Blob and converts it to a different data type.	BlobInput	The Blob input tool will read a Binary Large Object such as an image or media file, by browsing directly to a file or passing a list of files to read.
BlobOutput	The Blob Output tool writes out each record into its own file	Block Until Done	Stop downstream processing until the very last record has arrived, to ensure that only a single output stream processes records at one time. Or, ensure that the reading of a file will be closed before overwriting is attempted.
Detour	Bypass a set of tools. Must end in an Output or Detour End tool. Generally used for authoring an Analytic App or Macro.	Detour End	Ends a section of tools bypassed by a Detour. Generally used for authoring an Analytic App or Macro.
Dynamic Input	Read from input files or databases at runtime using an incoming data stream to dynamically choose the data. Allows for dynamically generated queries.	Dynamic Rename	Dynamically (using data from an incoming stream) rename fields. Useful when applying custom parsing to text files.
Dynamic Replace	Replace data values in a series of fields (using a dynamically specified condition) with expressions or values from an incoming stream.	Dynamic Select	Select or de-select fields by field type or an expression.
Field Info	Output the schema (field types and names, etc.) of a data stream.	JSON Parse	The JSON Parse tool separates Java Script Object Notation text into a table schema for the purpose of downstream processing.
Message	Write log messages to the Output Window. Generally used in authoring macros.	R	Execute an R language script and link incoming and outgoing data from Alteryx to R, an open-source tool used for statistical and predictive analysis.
Run Command	Run external programs as part of an Alteryx process	Test	Test assumptions in a data stream.

Throttle	The Throttle tool slows down the speed of the downstream tool by limiting the number of records that are passed through the Throttle tool.		
Social Media			
DataSift	Bring in data from Datasift-twitter, Facebook, Tumblr, YouTube, Wikipedia, and much more- **http://datasift.com/platform/datasources/**	Foursquare	Search Foursquare Venues by a location with an option of filtering by a search term.
GNIP Input	Bring in data collected from twitter, YouTube, Facebook in Grip and analyze it in Alteryx	Twitter Search	Search tweets of the last 7 days by given search terms with location and user relationship as optional properties.
Laboratory			
Charting	Produces simple line and bar charts for use with Alteryx reports.	JSON Build	The JSON Build tool takes the table schema of the **JSON Parse** tool and builds it back into properly formatted Java Script Object Notation.
Make Columns	The Make Columns tool takes rows of data and arranges them by wrapping records into multiple columns. The user can specify how many columns to create and whether they want records to layout horizontally or vertically.	Transpose In-DB	Pivot the orientation of a data table in an In-DB workflow. It transforms the data so you may view horizontal data fields on a vertical axis.